



Final Project Report

Looking back on the SABONET Project: a triumph of regional cooperation



Yolande Steenkamp, Stefan J. Siebert, Gideon F. Smith, Brian J. Hurdoy & Co.



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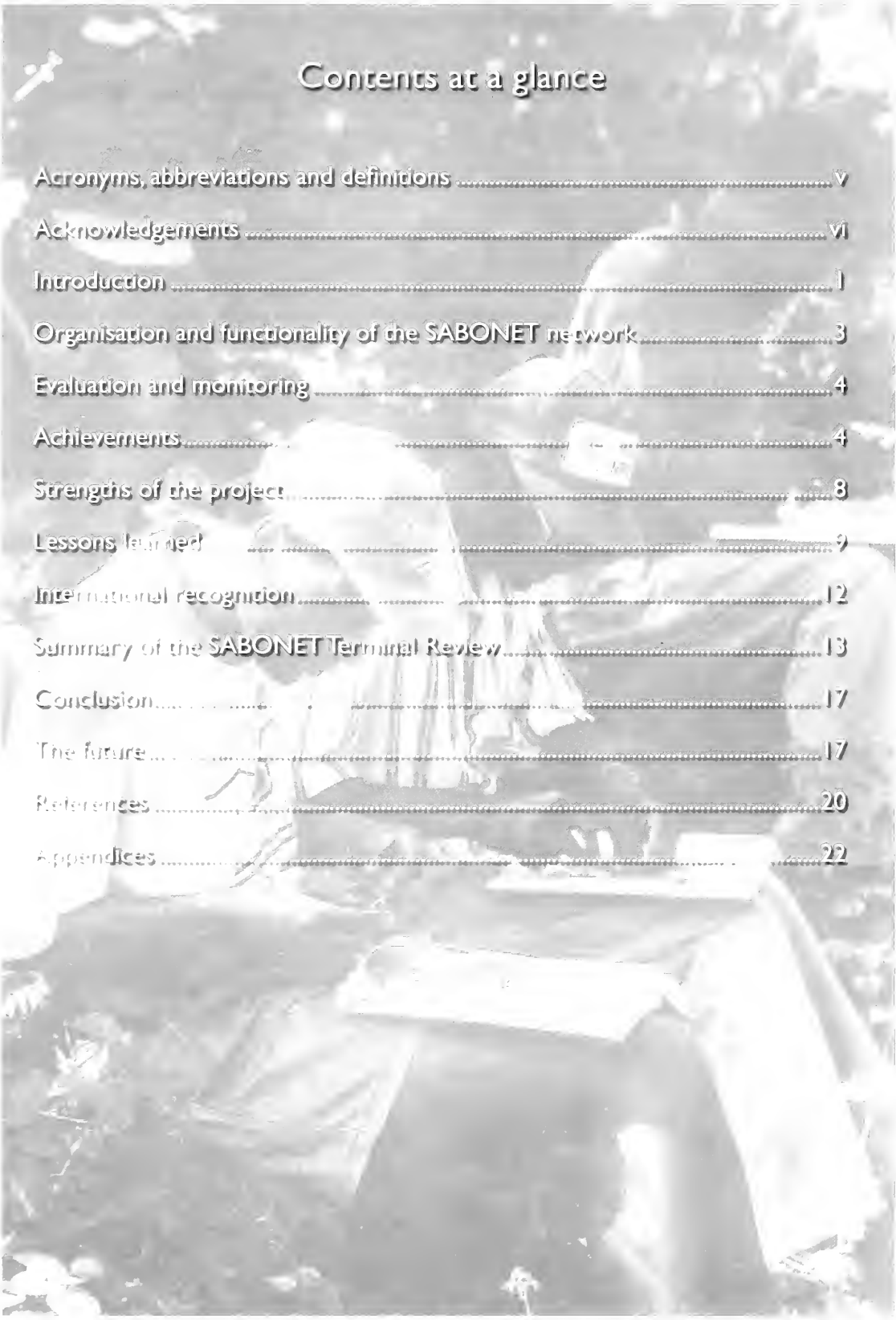
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Front cover: Scenes from SABONET collecting trips and expeditions (Photos: SABONET photographic archive).

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Acronyms, abbreviations and definitions

AETFAT	Association for the Taxonomic Study of the Flora of Tropical Africa
BGCI	Botanic Gardens Conservation International
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
GAB	National Herbarium of Botswana
GEF	Global Environment Facility
GIS	Geographical Information System
GSPC	Global Strategy for Plant Conservation
GTI	Global Taxonomy Initiative
IPA(s)	Important Plant Area(s)
IUCN-ROSA	World Conservation Union's Regional Office for Southern Africa
KPMG	Independent auditors for the Project
LMA	National Herbarium of Mozambique
LMU	Eduardo Mondlane University Herbarium, Mozambique
LUAI	Luanda Herbarium, Angola
MAL	National Herbarium of Malawi
MASE	Maseru Herbarium, Lesotho
NBG	Compton Herbarium, SANBI, South Africa
NBI	National Botanical Institute (of South Africa)
NBRI	National Botanical Research Institute (of Namibia)
NETCAB	Networking and Capacity Building Initiative for Southern Africa
NH	KwaZulu-Natal Herbarium, SANBI, South Africa
NWG	National Working Group
PRE	National Herbarium of South Africa
PRECIS	National Herbarium, Pretoria (PRE) Computerised Information System
PSUB	Peter Smith Herbarium, Botswana
ROML	National University of Lesotho Herbarium
SAAB	South African Association of Botanists
SABONET	Southern African Botanical Diversity Network
SANBI	South African National Biodiversity Institute
SDNH	National Herbarium of Swaziland
SNPH	Sehlabathebe National Park Herbarium, Lesotho
SpmnDb	Stand-alone version of the PRECIS database
SRGH	National Herbarium of Zimbabwe
SSC	SABONET Steering Committee
UCBG	University of Botswana Herbarium
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
UZL	University of Zambia Herbarium
WIND	National Herbarium of Namibia

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Making herbarium specimens during a Herbarium Management and EIA Training Course held in Zambia. (Photo: C. Willis)

Introduction

Southern Africa, as defined by the boundaries of the countries Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe, is one of the richest botanical regions on earth (Groombridge & Jenkins 2002). With well over 30,000 vascular plant species—10% of the world's species concentrated on less than 2% of the earth's land surface—the region has the richest temperate flora of any area of comparable size in the world (Huntley 1989). Higher-order taxonomic diversity and endemism are also exceptionally high, and the region includes two of the world's six floristic kingdoms, namely the Palaeotropical and Cape Floristic Kingdoms (Takhtajan 1986). It also contains 14 of the over 200 centres of plant endemism and diversity recognised worldwide (Davis *et al.* 1994). Three of the world's Global Hotspots of Biodiversity occur entirely within the region—the Cape Floristic Region (South Africa), the Succulent Karoo (South Africa, Namibia), and the Maputaland–Pondoland–Albany (South Africa, Swaziland, Mozambique)—while another two occur partly within the region—the Eastern Afromontane (Zimbabwe, Mozambique, Malawi and further north) and the Coastal Forests of Eastern Africa (Mozambique and further north) (Mittermeier *et al.* 2004).

Botanical and zoological diversity in southern Africa is increasingly under threat from rapid economic development and human population growth. Habitat loss and degradation, alien species invasion, deforestation, afforestation, climate change, desertification, urbanisation, and damming of natural waterways all pose a threat to the continued survival of southern Africa's biodiversity (Pierce *et al.* 2002). The need for an independent southern African network that can address regional degradation and loss of habitat had become increasingly evident over the last couple of decades. Efforts by regional botanical experts to facilitate conservation of southern Africa's botanical diversity have in the past been hampered by inadequate information on the vast majority of the subcontinent's plants. It was the urgent need for more information on the plants of southern Africa, as well as the need to create new, and strengthen and further extend existing capacity, that was ultimately responsible for the creation of the Southern African Botanical Diversity Network (SABONET).

Background

During the early 1990s a regional effort was conceived to take responsibility for meeting the obligations of the Convention on Biological Diversity (CBD): botanical institutions across southern Africa met in Maputo, Mozambique, and established a regional network of botanical expertise that could recognise, label, interpret, and analyse the botanical diver-

sity of southern Africa (Huntley 1994). It was, however, soon realised that the process was held back by a lack of funds and expertise in participating institutions.

Post-colonial African herbaria and botanical gardens had suffered a steady decline over the previous 40 years, and most specimens of African plants were deposited in Northern Hemisphere herbaria. Furthermore, botanical institutions suffered from a lack of local expertise, as trained and experienced individuals were being drawn away from Africa for studies and work abroad, or by opportunities in the private sector. It was this situation that SABONET aimed to change. To obtain the necessary funds, the international community had to be convinced of the need of such a capacity-building initiative.

Regional collaboration and extensive international lobbying led to funds being secured by the South African National Biodiversity Institute (SANBI—at that time the National Botanical Institute, NBI),* and in 1996, SABONET was established (Willis & Huntley 2001).

The SABONET Project

SABONET (Southern African Botanical Diversity Network), officially called "Inventory, Evaluation and Monitoring of Botanical Diversity in Southern Africa: a Regional Capacity and Institution Building Network" was a GEF (Global Environment Facility) Project implemented by the UNDP (United Nations Development Programme) and executed by SANBI. It was co-funded by USAID/IUCN-ROSA (United States Agency for International Development/The World Conservation Union's Regional Office for Southern Africa) through the NETCAB (Networking and Capacity Building Initiative for Southern Africa) Programme.

SABONET was aimed at strengthening the level of botanical expertise in the region, expanding and improving herbarium and botanical garden collections, and fostering closer collaborative links among botanists in southern Africa. It targeted southern African national and university herbaria and botanical gardens, and its immediate objective was to "*Develop a strong core of professional botanists, taxonomists, horticulturists, and plant diversity specialists within the ten countries of southern Africa, competent to inventory, monitor, evaluate, and conserve the botanical diversity of the region in the face of specific developmental challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity*" (Huntley *et al.* 1998). The ten southern African countries that participated in the SABONET Project were Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe.

* The South African National Biodiversity Institute (SANBI) was legally established with the promulgation of the National Environmental Management: Biodiversity Act no 10 of 2004 on 1 September 2004. This Act effectively replaced the National Botanical Institute (NBI) of South Africa with the newly named SANBI, and expanded its mandate beyond plants to include all biodiversity in South Africa. Prior to 1 September 2004, the institute involved in the SABONET Project was actually the NBI, but throughout this document only SANBI will be referred to, regardless of what the institute's name was at the time.

The formal outcomes of the project were (Huntley *et al.* 1998):

- Trained professional southern African plant taxonomists, horticulturists, and plant diversity specialists.
- Formal establishment of a collaborating Southern African Botanical Diversity Network.
- Electronic information systems on the region's plant diversity.
- Production of regional human and infrastructural inventories.
- Plant diversity evaluations and monitoring within the region.
- Development of a regional botanical gardens conservation strategy.

The major Project objectives were:

- A formally established collaborating Southern African Botanical Diversity Network.
- Trained professional southern African plant taxonomists and plant diversity specialists.
- Electronic information systems to document the plant diversity of the region.
- Herbaria capable of producing National and/or Poaceae checklists.
- Herbaria provided with the necessary capital equipment for taxonomic research.
- A regional Plant Red Data List.
- Compilation of regional human and infrastructural inventories.
- Production of regional herbarium and taxonomic manuals.
- Evaluation and monitoring of plant diversity within the region.
- An action plan for southern African botanical gardens.
- Threatened Plants Programmes initiated in each of the participating botanical gardens.



Participants in a Plant Identification Training Course making 'field books' for themselves. (Photo: SABONET)

Table 1. Primary participants in the SABONET Project.

COUNTRY	INSTITUTIONS
Angola	Luanda Herbarium (LUAL)
Botswana	National Herbarium (GAB) Peter Smith Herbarium (PSUB) University of Botswana Herbarium (UCBG) National Botanical Garden
Lesotho	Maseru Herbarium (MASE) National University of Lesotho Herbarium (ROML) Sehlabathebe National Park Herbarium (SNPH) Katse Botanical Garden
Malawi	National Herbarium (MAL) Lilongwe National Botanic Garden Mzuzu National Botanic Garden Zomba National Botanic Garden
Mozambique	Eduardo Mondlane University Herbarium (LMU) National Herbarium (LMA) EMU Botanical Garden INIA Botanical Garden Tunduru Botanical Garden
Namibia	National Herbarium (WIND) National Botanic Garden
South Africa	Compton Herbarium (NBG) KwaZulu-Natal Herbarium (NH) National Herbarium (PRE) Durban Botanic Gardens Free State National Botanical Garden Harold Porter National Botanical Garden Karoo Desert National Botanical Garden Kirstenbosch National Botanical Garden Lowveld National Botanical Garden KwaZulu-Natal Botanical Garden Pretoria National Botanical Garden Walter Sisulu National Botanical Garden
Swaziland	National Herbarium (SDNH)
Zambia	University of Zambia Herbarium (UZL) University of Zambia Botanical Garden
Zimbabwe	National Herbarium (SRGH) Ewanrigg Botanical Garden National Botanic Garden Vumba Botanical Garden
10 countries	17 herbaria and 22 botanical gardens

Organisation and functionality of the SABONET network

This section provides an overview of the management structure, flow of funds, and financial management of the SABONET project.

Management structure

SABONET was managed using a tiered structure consisting of a Regional Office, Steering Committee, and individual National Coordinators and workgroups in each country.

Regional Office

The SABONET Project was coordinated from the Pretoria offices of SANBI where the SABONET Regional Office—consisting of a Regional Coordinator, a Finance Officer and an Administrative Officer (positions funded through GEF/UNDP)—was established. For several years, the Red Data List Coordinator (position funded through USAID/IUCN-ROSA) also joined the Regional Office staff.

The Regional Office was responsible for approving the expenditure of the offices of National Coordinators in the participating countries. It was also responsible for disbursing funds to the participating institutions, for organising regional training courses, workshops, and the two regional plant-collecting expeditions, sourcing capital assets such as microscopes where these were not readily available in the participating countries, and for any and all other administrative tasks that were made necessary by the activities of the Project. Financial record keeping and reporting—to the GEF/UNDP, USAID/IUCN-ROSA and the Steering Committee, formed a major task of the Regional Office.

Steering Committee

The Project was guided by a regional Steering Committee (SSC), which consisted of a Chairman and a representative from each of the ten participating countries—eleven members in total. Representatives from the GEF/UNDP and USAID/IUCN-ROSA, as well as from SANBI's Data Section, participated in the meeting, but were not part of the Steering Committee. Members of the Regional Office coordinated and participated in the meeting.

Meetings

A Logical Framework/Budget Revision committee, consisting of SSC members and the Regional Office were responsible for an annual laying down of guidelines for planned expenditure for the following year and for updating the Project's workplan. These meetings, called Logical Framework and Budget Planning meetings, provided the forum where all involved parties could have a say in funding allocation. The workplan was based on the priority outputs for the SABONET Project that were defined in the Project Document (Huntley *et al.* 1998), as well as by amendments and additions that were suggested by the Midterm Review (Timberlake & Paton 2001) of the Project.

During the Project's zenith, SSC meetings took place twice a year. This changed during the two final "winding-down" years, when only one annual meeting took place. Logical Framework and Budget Planning meetings took place once a year up until 2003, after which budget planning became simpler with the downscaling of Project activities, and were incorporated into SSC meetings.

National Working Groups

Within each country a National Working Group (NWG) was selected from the conservation, botanical, zoological, agricultural, higher education, and other appropriate communities. The purpose and responsibilities of the NWGs were to act as a sounding board and a backup for the National Coordinators, as well as to aid transparency in the in-country Project coordinating process. For instance, in some countries, the National Working Groups were consulted in the process of appointing staff on SABONET-funded contracts. NWG meetings took place at least once a year at the discretion of the National Coordinator of a particular country.

Flow of funds

On receipt of quarterly work plans and advance requests from the SABONET Regional Office, the UNDP South Africa Country Office would transfer funds to the SANBI SABONET USD Account. From there it could be transferred as necessary to the SANBI SABONET Rand Account, from which funds could be used for project activities. Advances to country bank accounts were made from the SANBI SABONET Rand Account (Figure 1), and were cleared by the Regional Coordinator. SABONET South Africa could, of course, access the funds directly. To aid transparency and good work ethics, all Regional Office and SABONET South



Patrick Phiri demonstrating the use of a GPS to course participants. (Photo: M. Mössmer)

Africa expenses were cleared through SANBI's Finance Department, situated in Cape Town, South Africa (Figure 1).

Financial matters

The SABONET Regional Office reported expenditure to the UNDP South Africa country office on a quarterly basis. Independent auditors, KPMG, audited all financial records and

reports annually, and submitted reports to the UNDP. In the Terminal Review report (Simiyu & Timberlake 2005), SABONET was commended for using less than 6% of the total budget for regional administration. For a breakdown of the overall Project budget, see Appendix A. The expenditure of the USAID/IUCN-ROSA funded Red Data List project that was coordinated by SABONET is regarded as a separate project and reported elsewhere (Siebert & Smith in press).

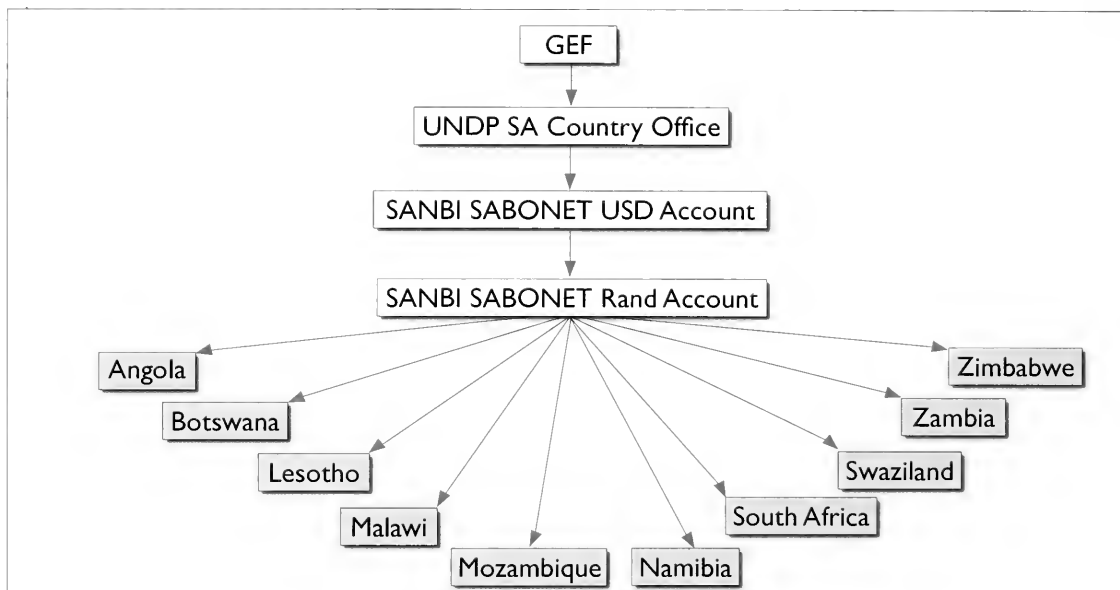


Figure 1. The flow of funds from GEF to the participating institutions.

Evaluation and monitoring

Capacity built is an abstract concept and difficult to measure. In SABONET, assessments were made internally, for instance by describing the financial and human resource input provided to build capacity (Siebert *et al.* 2001; Willis & Huntley 2001; Huntley *et al.* 2002; Siebert & Smith 2003), and by documenting the many lessons learned and needs established whilst establishing the Project as a regional capacity-building initiative (Steenkamp & Smith 2002; Siebert & Smith 2004).

In addition, the Project has been evaluated externally by the donor organisations, for example, the UNDP Midterm Review (Timberlake & Paton 2001), the Second Study of GEF's Overall Performance (GEF 2002), and the UNDP Terminal Review (Simiyu & Timberlake 2005, see Appendix B for full report). Measured against SABONET's requirements and achievements, these evaluations rated the Project as satisfactory throughout most of the project. SABONET scored a final overall rating of **Highly Satisfactory** in 2005.

Achievements

Data presented in this section of the report were extracted from various unpublished internal sources, including the Minutes of the 9th to 15th SSC meetings, four sets of Tripartite Review recommendations, eight Project Implementation Review reports submitted to the UNDP (1998–2005), eight Annual Project Reports submitted to SANBI (1998–2005), one Midterm Review Report, one Terminal Review Report, and all quarterly reports submitted by participating countries (1998–2005). SABONET's achievements are compared against eleven points of importance below:

- Establishing an intra-continental information network between herbaria and botanical gardens.
- Creating a demand for existing African expertise by promoting and marketing plant systematics.
- Developing communication tools and training for capacity-building in plant systematics.
- Strengthening existing centres of expertise.
- Training personnel in applied science, species-level diversity and phylogenetics.
- Staff exchanges to build skills and international liaison.
- Drawing up a roster of regional taxonomic expertise, directories of botanical information and checklists.
- Thematic workshops to address priority topics.
- Exchanging skills with developed countries.
- Complementing conservation initiatives through plant collecting programmes in under-collected areas.
- Indicating the conservation status of threatened species.

(1) Establishing an intra-continental information network between herbaria and botanical gardens

With the formation of SABONET, an internally cooperative network was established between the 17 herbaria and 22 botanical gardens that participated in the Project. These institutions have benefited in many ways as members of a strong and functional regional network. Contributions of resources and support provided by SABONET to these institutions have been documented in several publications (Siebert *et al.* 2001; Willis & Huntley 2001; Huntley *et al.* 2002; Maggs-Kolling & Siebert 2003; Siebert & Smith 2003).

The Project newsletter, *SABONET News*, was the voice of the network and announced activities and project decisions, discussed relevant topics, and documented Project outputs. Nine volumes (comprising 25 issues) of the newsletter were published and distributed to over 1,000 environmentalists in southern Africa, and another 1,000 in the rest of the world, in 77 countries in all.

A dedicated project website archive was established (www.sabonet.org.za), which features relevant background information about the Project, including information on its activities and achievements, profiles of the people who were most intimately involved in the project, information on the countries and institutions that were involved, and details of the capacity-building activities that SABONET supported. These include plant collecting trips, regional expeditions, red data listing, computerisation of herbarium collections, training courses and workshops, the internship programme,* threatened plants programmes,** and postgraduate students supported. Most of the SABONET publications, both reports and newsletters, are also available on this site in a downloadable PDF format.

(2) Creating a demand for existing African expertise by promoting and marketing plant systematics

During the establishment phase of the Project, it was soon realised that the solutions to most of the problems encountered lay in a south–south approach. To enable participating institutions to maintain routine services and duties, and at the same time address SABONET activities, the Project sponsored the employment of over 70 southern Africans as contract staff (Huntley *et al.* 2002), working as research officers, technical assistants, data entry clerks, horticulturists, and information technology specialists. (See Appendix D.) Of the contract workers, more than 30 filled positions as practising botanists. They were given training through various short courses, and exposed to research activities to enhance their experience and to build a strong core of capable, available staff, that could be absorbed into southern African institutions.

Regional collaboration between plant systematists in southern Africa has been highlighted by Smith & Willis (1999a), Huntley *et al.* (2002), and Smith *et al.* (2003) and has served to market the Project internationally. Through SABONET plant diversity specialists attended workshops of the Global Taxonomy Initiative, contributing towards recommendations for demand-driven plant systematics (Klopper *et al.* 2001), and also attended the AETFAT congress to strengthen African and international links to stay up to date with the latest advances in continental taxonomy (Gautier *et al.* 2005).

Unfortunately, SABONET could not continue indefinitely, and came to an end in 2005. To strengthen participating institutions during its exit strategy, SABONET had to prioritise activities that would be useful to stakeholders, and at the same time it had to show the value of the capacity built over the years. The publication of national checklists was seen as a good way of doing this, and was adopted as a major output. Under the auspices of SABONET, national plant checklists were prepared for all ten of the participating countries, and nine of these were published as part of the *SABONET Report Series*. (See Appendix C for a complete list of publications in the series.)

(3) Developing communication tools and training for capacity-building in plant systematics

As part of the Project's capacity-building initiatives, over 60 computers and related accessories were donated to participating institutions, and Internet and e-mail connections were installed at most participating herbaria (Huntley *et al.* 2005; Siebert *et al.* 2001). This enabled many of the participating herbaria to communicate using e-mail and to use the Internet as a research tool for the first time.

Computer-based research was part of a major drive to provide online assistance to and interchange between plant diversity specialists. In addition to the provision of hardware and software, regional and national training courses were used to empower participating institutions and individuals to use these systems effectively.

Herbaria are regularly requested to make their information more accessible and available to stakeholders. To make herbaria more relevant to these needs, SABONET supported the computerisation of herbarium specimens by supporting the development of software, and by training staff on PRECIS (National Herbarium, Pretoria (PRE) Computerised Information System) and the related SpmnDb database (a stand-alone PC version of PRECIS). These systems were specifically developed for southern Africa (Prentice & Arnold 1998; Arnold & Steyn 2005). Using PRECIS or SpmnDb, participating institutions captured the label information of over

* The SABONET Internship Programme aimed at supporting ongoing training and development of staff from participating herbaria and botanical gardens by sponsoring short internships (from a few days to a couple of weeks) during which the interns could visit other participating institutions in their own or other SABONET countries. This allowed young botanists to work side-by-side with experienced and acclaimed researchers and horticulturists.

** SABONET's Threatened Plants Programme was aimed at introducing *ex situ* conservation strategies at participating botanical gardens. Each botanical garden selected one or more plant species that are threatened in their countries and started a propagation programme with support from SABONET. SABONET also provided training to get everyone started.

500,000 specimens housed in the 17 participating southern African herbaria. (See Appendix I for a breakdown of the computerisation efforts of the participating herbaria.)

SABONET also supported the development of two mapping tools that can be used to map plant distributions in southern Africa. These are the Poaceae GIS, a user-friendly geographical information system that uses layers (shape files), and Mappit 3, a simple Windows-based mapping tool designed to work with PRECIS/SpmnDb, which can be used to plot plant distributions onto simple outline maps.

Other training courses that were held to increase capacity include four Botanical Garden Management courses, five Herbarium Management courses, seven Plant Identification courses, two Threatened Plants courses, one Botanical Art Drawing course, one Environmental Impact Assessment course, and one Cycad Conservation Course. (See Appendix E for details on training courses.)

(4) Strengthening existing centres of expertise

Many of the major herbaria and botanical gardens in southern Africa were poorly equipped to conduct research at a higher level or deliver relevant products. To address this, SABONET provided countries with funds to purchase capital equipment according to the needs determined during regional surveys (Smith *et al.* 1999; Botha *et al.* 2000). Participating institutions received a wide range of capital equipment, based on individual needs, for research purposes and

general upkeep. (See Appendix F for details on the capital equipment provided to participating institutions.)

Effective herbarium curation and relevant botanical research require access to up-to-date literature—a luxury that many of the participating herbaria had not had access to for years prior to SABONET, owing to the cost of scientific publications. SABONET made efforts to stimulate a steady inflow of literature, such as journals, to libraries and herbaria. Copies of *Flora of Southern Africa* (FSA) and *Flora Zambesiaca* (FZ) were donated regularly to SABONET countries by the producers, SANBI, Pretoria, and the Royal Botanic Gardens, Kew, respectively. Numerous books on horticulture were also purchased and sent to poorly resourced botanical gardens.

(5) Training personnel in applied science, species-level diversity and phylogenetics

SABONET has organised and presented 29 regional training courses, and afforded 200 southern African botanists the opportunity to learn more about the botanical sciences (Appendix E). Topics addressed include plant identification, databasing, herbarium and botanical garden management, and plant conservation. The Project also supported 26 (13 male and 13 female) young botanists to obtain 14 B.Sc. (Hons.), one B.Tech., and 21 M.Sc. degrees in plant systematics (Appendix G). The drive behind this training programme was to increase the number of plant diversity specialists in southern Africa, and to equip them to meet the challenges posed by the Convention on Biological Diversity (Huntley 2003).



Left: *Bauhinia petersiana*. (Drawing by Edwin Kathumbo) Top: Edwin Kathumbo attending the Botanical Art Course held at the Pretoria National Botanical Garden, South Africa. (Photo: SABONET)

Postgraduate research results of phylogenetic and species-level diversity were presented at various international and national conferences, such as AETFAT and SAAB.

(6) Staff exchanges to build skills and international liaison

The Project's internship programme afforded staff members involved in priority outputs the opportunity to travel to other institutions in the region to work with experts (Siebert 2003). SABONET sponsored 52 herbarium and 23 botanical garden internships that involved collaboration between institutions and colleagues in the region to produce outputs such as national plant checklists and threatened plant programmes (Appendix H).

Participants from Angola and Mozambique were assisted by the Project to secure NETCAB fellowships from IUCN to travel to Lisbon, Portugal, to work on the floras of the lusophone countries (Izidine & Duarte 2003). SABONET also supported taxonomists from the National Herbarium of Zimbabwe to receive training on Environmental Impact Assessment funded by USAID. Some SANBI staff members were sponsored to travel to London, United Kingdom, to work at Kew and to complete a book on the plants of the Nyika Plateau (Burrows & Willis 2005).

(7) Drawing up a roster of regional taxonomic expertise, directories of botanical information, and checklists

Some of the first activities of the SABONET Project were to prepare and publish directories of the plant taxonomic projects (Arnold & Mössmer 1998) and expertise (Mössmer & Willis 2000) in southern Africa. Workshops were held to determine the needs of herbaria and botanical gardens to enable them to fulfil their various functions effectively. Findings from these workshops were published in the *SABONET Report Series* (Willis 1997; Smith *et al.* 1999; Botha *et al.* 2000).

(8) Thematic workshops to address priority topics

SABONET successfully hosted 14 national Red List workshops during which specialists from the region conducted preliminary investigations into the threat status of rare plants in southern Africa. This culminated in the publication of *Southern African Plant Red Data Lists* in the *SABONET Report Series* (Golding 2002).

The Red Lists contributed significantly towards the implementation of the *Action Plan for Southern African Botanical Gardens* (Willis & Turner 2001), which was developed at a regional workshop for botanical gardens. The newly formed network of botanic gardens envisioned that each garden would have an indigenous Threatened Plants Programme in place by 2004.

Workshops to determine the needs of the users of botanical information became a major drive later in the project (Steenkamp & Smith 2002; Steenkamp & Smith 2003). Herbarium staff and users of taxonomic information attended end-user workshops in all ten countries, and numerous outcomes and decisions regarding the most important services

and stakeholder needs emanated from the various proceedings (Smith *et al.* 2004).

A regional Important Plant Areas (IPA) workshop was conducted in 2004, with the objective of adapting the European IPA selection criteria for southern African conditions. This workshop was attended by 28 participants from the region, as well as by stakeholders from Europe and East Africa. Two national workshops were subsequently held in Namibia and Mozambique to identify IPAs in these two countries. South Africa participated in SABONET's IPA initiative by appointing a consultant to identify regions within which the country should select its IPAs.

(9) Exchanging skills with developed countries

A consortium to compile an African Plant Checklist was put together by SANBI and the Conservatoire et Jardin Botaniques de la Ville de Genève of Switzerland (Gautier *et al.* 2005). SABONET sponsored and supported the participation of the southern African delegation in this initiative. A hardcopy checklist will be published once and will be available from the SANBI bookshop, while a database that will be updated regularly will be accessible on the Internet at www.ville-ge.ch/cjb/bd/africa/index.php.

The *SABONET Report Series* publication on herbarium practices, *Herbarium essentials: the southern African herbarium user guide* (Victor *et al.* 2004), has proved extremely popular, not only with southern African taxonomists, but with herbarium technicians and taxonomy students from across the world.

SABONET initiated its work with botanical gardens through a publication on the interpretation of living collections in botanical gardens (Honig 2000). This book was well received internationally, specifically by the BGCI, and formed the basis for activities to build capacity in southern African botanical gardens. It was translated into French by the BGCI to make it available to francophone countries across Africa. As a follow-on initiative, information on the cultivation of rare and threatened southern African species with horticultural potential was published as *Growing rare plants* (Nichols 2005) in the *SABONET Report Series*. Botanical gardens elsewhere will certainly benefit from this publication, as many rare southern African plant species are cultivated worldwide.

(10) Complementing conservation initiatives through plant collecting programmes in under-collected areas

SABONET's core business was to build the institutional capacity of regional centres of expertise to equip them to discover, describe, and document the flora of southern Africa. It was therefore important to conduct as many targeted field trips as possible to collect information about plants and their geographical distributions. To facilitate this, each participating country received an off-road vehicle through SABONET. As a result, altogether 101 national plant-collecting expeditions were undertaken, during which almost 20,000 specimens (both general and targeted) were collected.

Two large regional expeditions to under-collected centres of plant diversity were also undertaken under the auspices of

the Project. Expedition members of the 2000 Nyika Plateau Expedition to northern Malawi (Willis *et al.* 2001; Burrows & Willis 2005) and the 2001 Maputaland Expedition to southern Mozambique (Izidine *et al.* 2003; Siebert *et al.* 2004) contributed significantly towards the botanical knowledge of these centres by collecting more than 5,000 plant specimens, including some new taxa and many new records.

(11) Indicating the conservation status of threatened species

As part of the Red List initiative of the SABONET Project, Golding & Timberlake (2003) emphasised the importance of indicating conservation status and rarity on herbarium

specimens and subsequently in monographs and Floras. Participating institutions from southern Africa, and international institutions working on the southern African flora, now have a set of recommendations to follow.

Providing additional conservation information on herbarium specimens is closely linked to the standard use of data on plant species distribution. Plant distribution patterns are important when identifying threatened species and areas of high endemism and diversity. The benefits of providing accurate locality data and capturing such information form the basis of the production of distribution maps (Fish 1999), which can be used to answer conservation questions.

Strengths of the project

The accomplishments of the Project can be ascribed to twelve inadvertent strengths (from Siebert & Smith 2004), discussed in more detail below:

- A champion dedicated to the development of the Project.
- A Steering Committee with a passion for taxonomy.
- A strong, dedicated Regional Office.
- An established executing agency.
- An experienced implementing agency.
- A GEF funding mechanism.
- A collaborating network.
- An effort to meet sustainability.
- A spirit of regionalism.
- A regular monitoring and evaluation procedure.
- A South–South solution.
- Linking taxonomic products to end-users.

(1) A champion dedicated to the development of the Project

Since 1990, Prof. Brian Huntley, CEO of SANBI, has been prominent in initiating the network, sourcing the donor funding, developing the project proposals, and chairing the Steering Committee.

(2) A Steering Committee with a passion for taxonomy

Ten national coordinators from the ten participating countries had to fit the Project into already full schedules and went out of their way to attend Steering Committee meetings, coordinate SABONET staff and students, submit quarterly reports, manage the country finances, and initiate national project activities.

(3) A strong, dedicated Regional Office

A committed Regional Coordinator, Administrative Officer, Financial Officer, and Editor provided the network with the necessary back-up to ensure that deadlines were met, activities initiated and completed, finances managed, countries informed, meetings and courses arranged, publications produced, and links between countries fostered.

(4) An established executing agency

SANBI is one of the strongest taxonomic institutions in the southern hemisphere and provided the necessary expertise, infrastructure, linkages, knowledge, information technology, and human resources to assist with the many activities of a ten-country project.



SABONET Horticultural Course participants. (Photo: S. Siebert)

(5) An experienced implementing agency

The UNDP has considerable experience in project management and is well represented within southern Africa. It could therefore provide the necessary support and personnel to ensure that the correct procedures were followed, and could also implement activities to evaluate and monitor the Project.

(6) A GEF funding mechanism

Projects that receive GEF funds are allowed to revise their budgets and logical framework each year, and this allowed the Project to be flexible in its activities and outputs, to address new issues, and to reallocate funds that were locked in budget lines and also logical framework activities that were not linked to core outputs.

(7) A collaborating network

Approximately 200 taxonomists from across the region actively collaborated in SABONET activities and this willingness to partake in the Project drew together a wide range of expertise to meet the many objectives posed by the Project Document.

(8) An effort to meet sustainability

SABONET built a solid base of botanical researchers and plant information databases that can sustain future projects to continue the documentation of the region's flora, to assist with bioregional planning, and to contribute to conservation initiatives within southern Africa.

(9) A spirit of regionalism

Considering the large area covered by the Project, the collaboration between different countries and cultures was a victory in itself. This indicated that there were shared goals within the subcontinent, which provided the necessary polit-

ical backing for taxonomic research that wasn't always available at a national level.

(10) A regular monitoring and evaluation procedure

The GEF/UNDP's Annual Project Review, Project Implementation Report, Midterm Review, and Terminal Review, as well as the Project's own Annual and Quarterly Reports and Logical Framework Revision, were invaluable in their ability to ensure that relevant Project outputs had been set, implemented, and met by the end of the Project.

(11) A South-South solution

Taxonomic expertise within southern Africa was predominantly of a colonial origin, but in most countries this was lost after independence. Local people subsequently filled the void, and the SABONET Project strengthened their efforts by sponsoring M.Sc. degrees and internships to improve capacity at the scientific level.

(12) Linking taxonomic products to end-users

Herbaria face an increased need to be relevant and to produce information products that address end-user needs. SABONET determined end-user needs in southern Africa by holding end-user workshops in all ten countries (Steenkamp & Smith 2002; Steenkamp & Smith 2003; Smith *et al.* 2004). Through its products, for example, national checklists (Craven 1999; Chapano 2002; Kobisi & Kose 2002; Klaassen & Craven 2003; Manyanga & Perold 2004; Kabelo & Mafokate 2004; Braun *et al.* 2004; Costa *et al.* 2004; Phiri 2005; Mapaura & Timberlake 2004; Kose 2005; Setshogo 2005), Red Data Lists (Golding 2002; Loots 2005) and other publications (Roux 2001; Roux 2003; Leistner 2005; Burrow & Willis 2005), SABONET answered some of the end-user needs identified.

Lessons learned

The execution of the SABONET Project and the implementation of its activities across the region was not always a smooth process, and several obstacles regarding the following issues were encountered:

- Staff shortages
- National coordination
- Computer skills
- Project outputs
- Poorly resourced participants
- Government buy-in
- End-user needs
- Sustainability
- Language differences
- Communication
- Financial management
- Documenting biodiversity
- Training courses
- Publications
- Access to information
- Data quality control
- Follow-on project

Many important lessons were learnt in overcoming these difficulties and they are discussed in more detail below (from Siebert & Smith 2004).

(1) Staff shortages

Activities of participating institutions were hampered by staff shortages, and to counter this problem, SABONET appointed over 70 contract staff in the region. Owing to the nature of contract positions, postgraduate studies, and absorption by other institutions, the Project experienced a high turnover rate. This constant loss of trained staff resulted in a continuous drain of knowledge, necessitating a repeat of many training courses. Most participating institutions failed in their efforts to retain trained SABONET staff. Future projects should encourage participating institutions to appoint project staff in permanent positions to retain the capacity that has been built.

(2) National coordination

The responsibility for coordination of the Project in each country was given to a single individual (head of institute/

department), who ran the Project in collaboration with a National Working Group. Although this set-up proved successful, making use of an already over-occupied individual had some negative effects on the Project. Coordinating up to ten projects, in addition to already heavy national workloads in some under-staffed institutions, placed coordinators under much strain. Future projects should consider appointing a National Coordinator in each country and the head of institute/department/herbarium could then be elected as the Chairperson of the National Working Group.

(3) Computer skills

At the start of the Project it was assumed that all staff were computer literate and able to manage computer systems and databases. It soon became clear, however, that this was not the case. Computer courses alleviated the problem, but computerisation was still hampered by many problems. These were countered only when a SABONET Information Technology (IT) section was established to react to problems and breakdowns experienced by the participating countries. Future projects should therefore seriously consider involving IT specialists at an early stage to provide support and training to any project making use of extensive computerisation activities.

(4) Project outputs

Every project should have a set of major outputs to illustrate its relevance to donor agencies and the broader society. A major output of the SABONET Project was a strong core of professional botanists and plant information databases. The Midterm Review of the Project highlighted that these outputs were excellent, but not tangible to users of taxonomic information. It was therefore recommended that National and Poaceae Checklists should be seen as priority outputs for the Project. As not much thought was given to train staff in techniques to compile and produce these publications in a competent way during the life of the Project, much strain was placed on the countries to deliver these products. Future projects should structure their training programmes to be output-driven and linked to all the priority outputs of the project.



Trevor Arnold explaining to participants during a practical session at a SABONET Database Course.
(Photo: H. Heilgendorff)

(5) Poorly resourced participants

Not all participating countries were at the same level of development, and, consequently, they exhibited differing capacities to achieve the project objectives. As a result, some participating institutions seemed to make slow progress when compared to the achievements of others. Those with low capacities were therefore often not as motivated as the institutions that could meet deadlines and project activities with ease. Future projects should consider a reward system to recognise good progress made by poorly resourced countries. These rewards can, for instance, be in the form of internships to work with partners at stronger institutions to achieve project objectives.

(6) Government buy-in

Capacity building is seen as an important component of development by southern African governments and SABONET contributed significantly towards this vision. Unfortunately, governments did not show major support of the SABONET Project, and substantial national funding did not surface in any of the countries to support ongoing activities in the region after the end of the Project. Although SABONET marketed itself internationally, nationally, there was very little exposure to governments in some countries. Future projects should consider serious involvement with national objectives and be active in their contribution towards and participation in development initiatives of the respective countries.

(7) End-user needs

At the outset, end-user needs were not considered a priority for the development of SABONET project activities, although most of the activities were in line with the needs of the region. The Project's Midterm Review highlighted this weakness and recommended a strategy to involve stakeholders in the process of determining Project objectives. Subsequent national workshops to determine and address the needs of end-users brought to light many taxonomic needs that could be considered by future projects (Steenkamp & Smith 2002; Smith *et al.* 2004).



SABONET Database Course participants.
(Photo: H. Heilgendorff)

(8) Sustainability

All donor-funded projects come to an end, hardly ever lasting longer than ten years. In the light of sustainability, countries were not guided or involved in activities on how to raise their own funds to initiate new projects. Participating institutions are therefore dependent on SABONET to lobby for funding for work that came from the current Project. Future projects must realise that a follow-on project to sustain the activities of a current project is not always possible, and that it must guide and support participating institutions to launch their own initiatives.

(9) Language differences

When regional—and not cultural—boundaries are followed, countries with different national languages are expected to collaborate. Whereas most of the SABONET-participating countries have English as an official language, the two Portuguese-speaking countries (Angola and Mozambique) experienced language constraints during postgraduate training courses, which were all presented in English. Future projects should consider this issue and implement the necessary steps to enable minority groups to partake fully in project activities and to gain optimally from learning opportunities.

(10) Communication

Institutions participating in the SABONET Project were situated in different countries at different stages of economic and social development. Communication by the most efficient means, such as telephone, fax, and e-mail, was not always possible or, in some cases, very limited. During critical situations this became a drawback to the Project. Communication blocks can be overcome by making use of recognised courier services and future projects should consider this option as a back-up or an alternative to suit their needs.

(11) Financial management

Donor-funded projects have large budgets and are usually managed within the existing systems of the implementing

or executing agency. SABONET placed this responsibility on SANBI as the executing agency, because delays were experienced when transferring funds through the overloaded implementing agency, UNDP. Future projects should therefore consider basing their Regional Office in the most established institution in the project so as to make use of a well-structured financial management system. Furthermore, because financial management can become a daunting challenge to non-financial managers, it is wise to appoint a dedicated Financial Officer for financial administration in the Regional Office. It is also very important to give some basic accounting training to national managers.

(12) Documenting biodiversity

Various national and regional plant-collecting expeditions were conducted during the life of the Project. These expeditions were extremely successful and contributed considerably towards raising awareness and increasing botanical knowledge of centres of plant diversity that had not been studied in sufficient detail in the past. Shortcomings and experiences are discussed in papers by Willis *et al.* (2000) and Siebert *et al.* (2002), which can be studied by planners of future projects before embarking on similar endeavours to document biodiversity in under-sampled areas.

(13) Training courses

SABONET developed various courses to train herbarium assistants and data-entry clerks to achieve the objectives of the Project. Not much effort was put into the training of national project managers and at times they struggled to assist their staff sufficiently when they experienced problems or were asked difficult questions. The Midterm Review realised this weakness and subsequently various courses for managers were implemented to improve their capacity to manage project activities. Future projects should consider training all management staff to equip them to manage staff who work for a project/programme under their supervision.



Preparing collected plant material for pressing, SABONET Nyika Expedition. (Photo: C. Willis)

(14) Publications

Regional projects usually have a requirement, as a commitment to the donor agency, for publications to inform the broader society of their activities and to deliver major outputs. Participants in the SABONET Project were not adequately trained and encouraged to take up their pens and publish, because of a lack of mentorship within the Project. Future projects should consider including this aspect in training courses, appointing a focal point dedicated to editorial needs and making use of internships to work in collaboration with experts.

(15) Access to information

Outputs within SABONET were based on furthering the work done by developed countries during colonial occupation, but in many instances this information was difficult to obtain. Access to information was also limited because it was not available electronically. The compilation of plant diversity databases would have been much easier if institutions had easy and complete access to electronic versions of already published lists. Future projects should consider, as a major output, obtaining electronic versions or digitising available information of work already done by other projects.

(16) Data quality control

The main activity in the SABONET Project was computerising the collections in the major herbaria in southern Africa. This entailed entering the information on the data labels of herbarium specimens into a database. As data-entry clerks had no formal botanical training, this exercise was prone to error. Future projects should endeavour to appoint and train information officers to conduct quality control of the database, which will increase the accuracy of entered data and enable staff to deal more efficiently with database enquiries.

(17) Follow-on project

Although SABONET was a regional project recognised for documenting plant diversity and contributed significantly to the development of southern African botany, no assurance of a SABONET follow-on initiative has been given. Despite the taxonomic impediment, which is recognised worldwide, international donors have not committed themselves to fund future taxonomic projects in Africa (Klopper *et al.* 2001). Future projects should lobby extensively for the recognition of the value of taxonomic work to ensure that there is a continuous process of follow-on projects to document the rich biodiversity of Africa for conservation initiatives.

International recognition

SABONET's success, the contribution it made towards development in southern Africa, and the way in which it empowered plant taxonomists and plant diversity specialists have received national and international recognition. The following comments directly and indirectly emphasise SABONET's importance as a regional taxonomy project (Siebert & Smith 2004):

"SABONET was one of twelve, out of the over 1,000 GEF projects worldwide, mentioned in the Second Study of GEF's Overall Performance. It was commended on its interaction and networking between institutions and countries, its use of media and newsletters, the implementation of database technology and its potential to serve as a base for the development of new projects."

—GEF/UNDP Regional Bureau for Africa, minutes of the 11th SABONET Steering Committee Meeting

"SABONET is recognised as having a major role to play in increasing human and institutional taxonomic capacity directed at meeting the needs of implementing the Convention on Biological Diversity. In

addition, SABONET is a pilot at the regional level for the development of a coordinated global taxonomy information system."

—6th Meeting of the Conference of Parties, Global Taxonomy Initiative, Programme of Work, Planned Activities, <http://www.biodiv.org./decisions/>

"Regional taxonomy networks, such as SABONET, with assistance from BioNET-INTERNATIONAL and UNESCO, should be strengthened to facilitate regional cooperation in taxonomy as part of Planned Activity 6 of the GTI Programme of Work."

—Letter from the Executive Secretary, Convention on Biological Diversity, to the Chairperson, SABONET Steering Committee

"Congratulations on your excellent publication Southern African Plant Red Data Lists, which I was very pleased to receive. I found this publication extremely motivating. An excellent example for regional plant conservation activities, and one that IUCN is pleased to support. Thanks for your commitment and devotion."

—Achim Steiner, IUCN



Summary of the SABONET Terminal Review

The full text of the SABONET Terminal Review is presented in Appendix B. The following paragraphs were extracted from the Executive Summary of the Review.

Background

The Terminal Review mission of the Southern African Botanical Diversity Network (SABONET) was undertaken from 17 February to 4 March 2005 with an aim to assess the relevance, performance and success of the project. In assessing project implementation, the team used the GEF review criteria of implementation approach, country ownership and drivenness, stakeholder participation and public involvement, sustainability, replication approach, financial planning, cost-effectiveness, and monitoring and evaluation.

Logical framework

The log frame was revised annually by the SABONET Steering Committee and necessary modifications made in response to emerging needs in the context of the project. Annual work plans were based on the log frame that was used as a tool for monitoring, evaluation, and financial planning. All the regional annual reports reflect progress in the achievement of the activities, and highlight gaps and challenges.

Training courses

The project ran a total of 22 in-house regional dedicated training courses using local resources and expertise in the fields of herbarium management (3), database management (7), plant identification of various taxonomic groups (5), environmental impact assessment (1), cycad conservation (1), botanical drawing (1) and field courses (1). Sixteen of these courses were held in South Africa while six were held in other countries in the region. Four courses were held at the national level (Namibia—Grass identification and PRECIS Computer course, Zambia—Herbarium Management and EIA, and South Africa—Cycad Conservation Course). Various Red listing courses were held at the national level to develop red lists and were supported in part by IUCN ROSA through the NETCAB funding. A critical element was the emphasis on needs-based training programmes. Each course was uniquely developed based on needs identified regionally and tailored accordingly. The foundation has been laid for future capacity building initiatives and the onus is on the institutions to maximise the experience gained and build on this at national and regional levels as need arises.

Regionality

The SABONET project has provided an excellent model for networking at a regional level. The project has actively strengthened networking within the 17 regional herbaria and 22 botanical gardens in the 10 participating countries. A network newsletter was published three times a year, with a mailing list of 905 people worldwide. A total of 23 issues have been published. High quality regional and national techni-

cal project publications were produced as the *SABONET Report Series*. Out of a total of 42 approved reports, 33 have been produced and eight are in press. Nineteen of these reports were national publications. Computer hardware and software were purchased for all herbaria, and computer networks put in place. One regional computer training course was held at the beginning of the project (1997) and six database management courses held in Pretoria (5) and Windhoek (1). However, there is need for sustained effort to maintain cutting edge technical and IT skills given the dynamic nature of the IT industry that may quickly render the SABONET investment obsolete.

Training

A total of 186 participants attended the regional courses of which just over one third (37%) were female. While the project made efforts to ensure gender balance, this was constrained in part by prevailing institutional structures and establishments. In the second phase of the project, 75 internships were held within the region between herbaria and botanical gardens to strengthen the technical and research skills base depending on the specific institutional needs and priorities. Of the 22 MSc students sponsored by the project, 19 have completed their studies and three are due to complete their studies by the end of the year. Three recipients of SABONET scholarships excelled in their MSc degrees with distinction and two have proceeded to PhD. Registration. This initial core critical mass established by the SABONET project has the potential to strengthen capacity building in plant systematics and conservation at national and regional level.

Computerisation

Of the ten countries, only Namibia was able to database all their collections with 81,211 specimens even though they had initially starting data basing their collection using a different database (BRAHMS—Botanical Research and Herbarium Management System) and had to restart all over again with the PRECIS system. During the 2004/2005 period, the existing PRECIS databases have been migrated to the open-source MySQL platform to allow for greater flexibility and interoperability as well as easier interface with the newer Microsoft XP and Microsoft 2000 given that the earlier database structure was based on Microsoft 1997. In the later phase of the project database activity shifted to the computerisation of Poaceae with a better success rate. All the institutions managed to database 100% of their Poaceae except Botswana, Lesotho, Mozambique and Swaziland.

Threatened plants

With additional support from IUCN ROSA's NETCAB Programme and using the SABONET framework, the SABONET Project organised national red listing workshops using the IUCN red listing criteria in all the ten countries and developed draft national red lists. Three Important Plant Area

(IPA) Workshops were held in Namibia, South Africa and Mozambique and a regional IPA workshop held in South Africa prior to national IPA workshops. Countries with incomplete checklists and databases were constrained in reviewing and identifying IPAs at a national level. There are plans to follow up IPA workshop recommendations in Namibia potentially ensuring that a sustainable agenda for IPA is put in place at a national level. The progress by Namibia presents an excellent model for the other countries.

End-users

End-user workshops were held in all the SABONET countries and a summary of the findings are presented in the *SABONET Report* No. 29. However, the opportunity presented by these workshops to engage the wider community were not optimally utilised and there is room to strengthen this activity post-SABONET as a continuous consultation to ensure that the institutions deliver timely and relevant outputs. Various Threatened Plants Programmes were developed in the later phase of the project linked to the International Agenda for Botanic Gardens in Conservation (IABG) and national red lists developed as part of the SABONET project in 22 botanical gardens in the region.

Other projects

Due to the capacity build by SABONET, national institutions were well placed to attract and absorb new projects and efforts were made to integrate and link these to SABONET. These include the Survey of Economic Plants in Arid and Semi Arid Lands (SEPASAL) in Namibia (Royal Botanic Gardens, Kew); Millennium Seed Bank projects with South Africa, Namibia and Botswana (RBG, Kew); Plant Resources

of Tropical Africa (PROTA) project in Malawi (Wageningen University, Netherlands); and the African Plants Initiative and African Plant Checklist projects (funded by the Mellon Foundation, with leadership from SANBI). SABONET intended to work closely with the SADC-Italian funded SECOSUD project, but with limited success, as this project was not completed. Indeed, without the SABONET foundation, it would not have been possible to implement such a wide array of projects.

Impact

SABONET has made a substantial investment in the region's human resource capital for plant research, conservation and sustainable use. Already, early signs indicate potential impact and benefit of this investment are visible. Staff trained under SABONET has moved to strategic positions within their national and regional institutions. For example, in Zimbabwe, one SABONET trained staff member was moved to head the National Gene bank and the other became the Herbarium Curator for Namibia. Plant taxonomy and conservation are beginning to receive more attention in the policy and conservation arena e.g. Malawi (hosting the national CBD committee) and the development of the NBSAP in Botswana. Various SABONET trained staff have taken on teaching responsibilities at local Universities (Malawi, Zambia, Zimbabwe, Botswana and Mozambique) ensuring that a new generation of plant taxonomists and conservationists are trained.

Various SABONET staff (South Africa, Botswana and Malawi) have been actively involved in the CBD National Committees and delegations to the Conference of Parties and SBSSTA meetings, as well as being selected as national focal points for the Global Taxonomy Initiative (Namibia) and CITES focal points. The project outputs contributed significantly to various international conventions such as CBD, CITES, RAMSAR even though there was limited efforts by the project staff to package their outputs in relevant format to contribute to the national reporting to these Conventions.

National support

Due to the specific overall objectives and log frame being developed before most of the CBD POW and emerging NBSAPs and MDGs, there wasn't sufficient flexibility to allow countries to steer SABONET activities towards national needs. The imbalance between country resources, institutional capability and manpower affected the ability and willingness of countries to meet specified project outputs. Even though the project has come to an end, there has been limited effort at the national level to communicate the relevance of the project to its sectoral and development plans. However, it is anticipated that efforts will be made to rectify this situation in line with the recommendations from the end user workshops

Publications

Through a high quality three times yearly newsletter with a global distribution list of 905, the *SABONET Report Series*, and frequent presence at key international and regional meet-



Looking at wetland grasses during a grass identification course in Zimbabwe. (Photo: M. Mössmer)

ings, SABONET became widely known as a flagship GEF taxonomic, capacity building and networking project. The limited uptake of these products outside the SABONET fraternity at national and regional level could be attributed to a very focused approach of SABONET (i.e. plant taxonomy, with limited conservation or tailored taxonomic products), while the emphasis on capacity building as the major output limited potential entry points for government stakeholders.

Linkages

At the regional and international level, a significant impact of the project has been its project effectiveness in building linkages to the broader taxonomic and botanic gardens community. SABONET revitalized southern African botanical institutions' involvement in the taxonomic community working on the African flora (AETFAT) and made significant contributions to the AETFAT Congresses in Meise, Belgium (2000) and Addis Ababa, Ethiopia (2002). Its database experiences have been instrumental in the development of the African Plants Initiative and the African Plant Checklist project with linkages to all the key botanical/plant taxonomic expertise in Africa, Europe and the USA. Through its activities with botanical gardens, SABONET has built strategic linkages to the African Botanic Gardens Network and Botanic Gardens Conservation International and has implemented various aspects of the International Agenda for Botanic Gardens in Conservation. Overall, the project has been more successful at the international level than was expected, and as successful at the regional level as could reasonably be expected.

Replication

A good indicator of the project replicability is the proposed GEF/UNDP Eastern Africa Botanical and Zoological Networks in Taxonomy (BOZONET), which has been modelled on SABONET. The outputs of SABONET have been up-scaled and replicated through the Africa Botanic Gardens Network, the African Plants Initiative and African Plant Checklist project, as well as related initiatives such as the MSB project, SEPASAL and PROTA. Some SABONET products have been replicated in-country. In addition, the SABONET project has delivered a strategic response to the GTI Programme of Work (POW) and set the southern African Parties ahead in its implementation. The Logical Framework developed well before the GTI POW provided an excellent fit to the delivery of its first three operational objectives.

Cost-effectiveness

SABONET was designed to be very cost-effective in delivering project objectives and exceeded expectations. No significant budgetary adjustments were needed and the project delivered more outputs than initially planned. In delivering its major outputs, the project spent 62.1% of the budget on training, national staff (whose costs has been taken on locally after the project) and equipment. Only 6.3 % was spent on regional administration. In general, the administrative costs were kept low with 75% of the budget being spent in-country on project activities as defined by the log frame.

The SABONET project was very successful in leveraging additional funding and co-finance at national and regional level. At the initial phase, IUCN Regional Office for Southern Africa through its NETCAB funding supported the establishment of the Southern African Botanical Diversity Network before the GEF funding was released. Later, the NETCAB phase supported the Red Listing Training workshops at national level and the development of the National Red Lists. Thus, IUCN ROSA contributed USD 649,000 (which is more than the initial proposed USD 447,000 as Co-finance). Further, the governments and other national supporters provided USD 4,000,000 as co-finance, predominantly as in kind contribution through salaries, facilities and equipment.

Management

The SABONET management structure was very effective. The project was very well managed with a very effective and functional Regional Office manned by three competent and highly qualified Regional Coordinators over the project lifetime. All the National Coordinators supported the choice of NBI as the executing agency and they noted that it was the best-placed institute in the region to carry out this role. It was agreed in principle that a rotating Secretariat would have been costly and ineffective. Participating institutions were comfortable with the Secretariat being based in South Africa, allowing access to key resources and universities.

Unique elements

The SABONET project model was very well designed to meet its objectives and highly replicable. It is however important to stress that SABONET has some unique elements that were responsible for its huge success that may not be easy to repli-



Identifying specimens at a grass identification course in Zimbabwe. (Photo: M. Mössmer)

cate in other contexts, but could be up-scaled. These are: (a) a strong project champion with institutional, regional and international support and presence, (b) visionary yet adaptable project leadership and management, (c) a transparent and strong regional Steering Committee with consistent membership during the project phase chaired by a competent leader, (d) willing, focused and motivated team players in a regional context, and (e) highly experienced and committed support from the GEF Regional Advisor.

UNDP

UNDP was the best placed implementing agency for the SABONET project as all the participating countries have a national UNDP office with the potential to support in-country implementation. SABONET had a development goal and its capacity building and institutional strengthening focus was directly linked to the UNDP mandate and focus in the region. Some UNDP offices were actively involved and interested in project activities and participated in National Working Groups (e.g. Namibia, Malawi, Botswana and South Africa). In South Africa, the UNDP office provided good support to the regional office. The GEF/UNDP Regional Coordinator provided timely and practical guidance for the project.

Follow-up actions

Recommended follow-up actions include:

Databases

- Follow up to finalize MOU on data sharing between the Namibia's National Herbarium (WIND) and SANBI. This could be used as a potential model for regional/bilateral data sharing agreements.
- SANBI needs to clarify its role and what potential support might be available to participating institutions concerning the PRECIS Specimen Database development, future upgrades, trouble-shooting and training. The SABONET National Coordinators should communicate their expectations clearly and agree modalities. It would be worthwhile to have some formal institutional agreement that would be valid post-SABONET.
- Institutions that have not completed data basing their specimens should set SMART targets on this activity and seek additional funding to complete it.

Red Lists

- Review national Red Lists, update them and disseminate results to the relevant agencies, especially those working on *in situ* and *ex situ* conservation.

End-user workshops

- Follow up on recommendations of the end-user workshops at a national level.
- Strengthen partnerships developed during the project.
- Explore ways and means to build linkages to relevant sectoral and national policies by working closely with the relevant agencies.
- Build linkages to the GTI and GSPC focal points and

join forces to define and push forward a locally relevant national plant conservation and sustainable use agenda.

The SABONET Exit Strategy

The national institutions need to mainstream SABONET resources and capacity. Recommended activities include:

- Establish linkages to potential funding organizations, e.g. the Belgian GTI focal point funding for internships.
- Explore new sources of funding at local, regional and international levels and pursue them.
- Seek and clarify potential partnerships and linkages at national and regional level that may be useful in soliciting funds, and use these to develop new projects or programmes, based on national, bilateral and regional emerging priorities especially those which demonstrate relevance and provide strategic linkages and partnerships.
- Carry out strategic reviews to identify their strengths and relevance, e.g. to relevant thematic programmes and policy frameworks such as invasive species, useful plants and medicinal plants, which they could focus on to demonstrate relevance, ensure sustainability and attract local and regional support.
- Strengthen linkages between botanical gardens, Botanic Gardens Conservation International and the African Botanic Gardens Network, whilst herbaria should strengthen linkages to BioNET International and AET-FAT.

At the regional level, the Steering Committee needs to:

- Outline the linkages and legacy of the SABONET project in relation to the API and APC, and to other related projects such as the MSB, SEPASAL, GBIF, PROTA, and BGCI's African Small Grants Programme.
- Agree on pragmatic options for sustaining the SABONET network.
- Update the SABONET website and build links to national participating institution websites.

The SABONET legacy: What next?

- Each National Coordinator should produce a document on outlining how the project has benefited the institution, country and region, including linkages to CBD (especially GTI, GSPC, IAS, PA), UNCCD, CITES and other environment and sustainable development agreements, and circulate this to relevant stakeholders, especially the CBD focal points.
- Collaborating institutions should compile the outcomes of the SABONET project in the context of the GTI and GSPC, present these to the CBD focal points and request that they be included in the country reports.
- Since the GTI is due for an in-depth review of progress in implementation at COP 8 (March 2006, Brazil) the SABONET Regional Office should produce a paper summarizing the experience of SABONET in implementing the GTI as a component of this review for southern Africa. This paper can be submitted by the GTI focal point of one of the participating institutions as an information document to SBSTTA 11. (Some of the SABONET

National Coordinators are GTI focal points and could facilitate this, e.g. Botswana, Malawi and South Africa).

- In order to ensure long-term access to the excellent documents produced by SABONET and share experiences in building capacity for taxonomy at the national and regional level, the SABONET Regional Office should compile a CD-ROM/DVD of all electronic outputs (within acceptable copyright limits) and disseminate these. Copies should be made available to the CBD Secretariat and BioNET International libraries, amongst others. Consultations with the latter and the GTI Officer may provide further guidance. Any freely accessible

electronic documentation should be availed to the CBD Clearing House Mechanism.

- Hard copies of all available literature should be disseminated to all key libraries to ensure continued access long after SABONET closes.
- A strategy for database updates and long-term maintenance should be formulated to avoid the in-country datasets being orphaned and abandoned, or worse still have the wheel re-invented through other funding mechanisms. Discussions with relevant stakeholders and links to the African Plants Initiative and GBIF may provide some alternative scenarios.

Conclusion

As an established, functional, and highly successful botanical network, SABONET achieved significant impact in southern Africa by building botanical capacity in terms of both the infrastructure and the human resources (expertise) necessary to allow the region to respond to the obligations of the CBD and subsidiary initiatives such as the GSPC (Anonymous, undated). For a discussion of how SABONET has contributed to the attainment of some of the GSPC targets, see Appendix J.

The success of SABONET was ensured by the goodwill, diplomacy, and hard work of the Steering Committee, and the cooperation, active participation, and mutual support of everyone involved. Owing to the dedication of all of these people, SABONET may stand as an example to the world of how a cluster of countries can put aside their differences and together work towards achieving common goals.

The future

The expertise and capacity built under the SABONET Project is now well placed to make an impact on the ground. SABONET ensured that a strong group of plant scientists are now available in the region, and that national institutions are better able to implement their national mandates, which often include the conservation of the region's flora. It also allowed for a substantial increase in the knowledge of the

region's flora. SABONET's focus was very much on capacity building, and to a lesser degree on the implementation of that built capacity. It is now up to the participating institutions that benefited from SABONET to take it further—to use what has been acquired, and to implement what has been learned—thereby, it is hoped, stemming the loss of southern Africa's biodiversity.



Gathering plant material at Buffelskloof Nature Reserve, South Africa. (Photo: C. Willis)





Collage by S. Turak

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APPENDIX A

Breakdown of the overall Project Budget (US Dollars)

Project Title: SABONET Project Number: RAF/97/G33/F/1G/99													
B/L	Description	Reference to logframe	PAD	To 1998	1999	2000	2001	2002	2003	2004	TOTAL	2005 (Budget)	TOTAL
13.00	Administrative Support Personnel												
13.01	Administrative Assistant	2.2	13,470.82	1,326.84	9,721.59	9,825.30	8,617.86	9,158.89	10,613.68	6,051.14	55,315.30		55,315.30
13.02	Financial Assistant	2.2	3,962.08	7,963.38	8,498.51	9,798.14	8,451.77	7,807.69	10,721.01	6,051.14	59,291.64		59,291.64
13.03	Temporary administrative support	2.2	480.30	3,061.40	-	-	809.08	457.16	2,290.84	594.24	7,212.72		7,212.72
13.99	Sub-total: Administrative support		17,913.20	12,351.62	18,220.10	19,623.44	17,878.71	17,423.74	23,625.53	12,696.52	121,819.66	-	121,819.66
16.00	Mission Costs												
16.01	HQ Monitoring mission	O/H		-	1,725.49	1,574.70		-	-	-	3,300.19		3,300.19
16.02	Tripartite Evaluation	O/H		-	12,017.20			-	-	-	12,017.20		12,017.20
16.03	Mid-term Evaluation	O/H		-	-	1,873.87	19,173.61	-	-	-	21,047.48		21,047.48
16.04	Terminal Evaluation	O/H		-	-			-	-	-	-	40,000.00	40,000.00
16.05	Sabonet Steering Committee	2.1	39,444.90	20,899.91	31,323.93	31,151.96	18,252.40	26,096.45	11,927.38	8,091.99	139,652.03	25,000.00	164,652.03
16.06	Country visits within the region		18,931.22	22,156.64	20,877.26			-			43,033.90	7,000.00	50,033.90
16.06.1	IT Department	R/C, 3.2				4,177.69	16,991.29	1,917.39	8,965.99	6,341.64	38,394.00	10,000.00	48,394.00
16.06.2	Rec Data List	R/C				6,803.86	129.78	-	-	-	6,933.64		6,933.64
16.06.3	Coordinator's Office	R/C				12,146.91	8,936.45	381.14	4,738.23	7,000.81	33,203.54	13,500.00	46,703.54
16.06.4	Collaborative Research								-		-		-
16.06.4.1	Internships Herbaria	1.6					7,861.96	36,678.45	18,611.88	3,218.19	66,370.48		66,370.48
16.06.4.2	Internships Gardens	6.7, 6.8					949.81	1,863.92	35,137.57		37,951.30		37,951.30
16.06.5	Other	R/C				2,333.69	828.01	204.95	-		3,366.65		3,366.65
16.07	Workshops			1,665.67	25,624.98			-	-		27,290.65		27,290.65
16.07.1	National Working Group Meetings	2.4				2,123.78	2,971.54	3,405.76	7,146.29	20.97	15,668.34		15,668.34
16.07.2	Technical Workshops	1.8, 5.5, 5.6				18,610.14	3,164.58	14,365.46	7,322.43	29,252.20	72,714.81	1,571.50	74,286.31
16.07.3	Technical Workshops Gardens	6.6, 6.12					17,771.48	33,438.46	6,257.23	64.49	57,531.66		57,531.66
16.07.4	Workshops for SABONET II						-	-	-		-		-
16.99	Sub-total: Mission costs		58,376.12	44,722.22	91,568.86	80,796.60	97,030.91	118,351.98	100,107.00	53,990.29	578,475.87	97,071.50	675,547.37
17.00	INPP												
17.01	Project Coordinator	2.2	71,874.24	19,162.88	33,825.71	28,439.79	11,772.63	13,601.44	19,797.41	23,612.07	150,211.93		150,211.93
17.02.1	IT Staff	2.2		1,159.28	7,920.02	1,312.18	10,713.32	26,005.52	19,637.17		66,747.49		66,747.49
17.02.2	Temporary IT support staff	2.2				-	-	-	-		-		-
17.03	Herbarium Research Officers	1.1		22,708.45	70,206.36	89,100.80	110,675.82	76,079.02	59,697.55		428,468.00		428,468.00
17.04	Herbarium Technical Assistants	1.1		8,991.12	53,406.81	82,724.43	37,160.64	35,294.65	8,938.56		226,516.21		226,516.21
17.04.1	Herbarium Data Capturers	1.1					54,796.18	89,187.06	34,268.31		178,251.55		178,251.55

APPENDIX A

Breakdown of the overall Project Budget (continued)

Project Title: SABONET Project Number: RAF/97/G33/F/1G/99												
B/L	Description	Reference to lagframe	PAD	1998	1999	2000	2001	2002	2003	2004	TOTAL 2005 (Budget)	TOTAL
17.05	Horticulturists	6.4		-	-	-	-	12,957.47	27,445.37		40,402.84	40,402.84
17.06	National Experts		4,796.09	17,086.55			-	-	-		21,882.64	21,882.64
17.07	National Consultants Gardens	6.7, 6.9					-	222.82	(156.08)		66.74	66.74
17.08	National Consultants	3.6, 5.1, 5.6, 5.7, R/C		7,927.74	33,121.47	25,512.86	18,894.87	60,989.96	7,565.80	154,012.70	1,000.00	155,012.70
17.99	Sub-total: NPPP		71,874.24	56,817.82	190,373.19	234,698.67	250,631.45	272,242.85	230,618.25	31,177.87	1,266,560.10	1,267,560.10
19.00	Personnel component total		148,163.56	113,891.66	300,162.15	385,118.71	365,541.07	408,018.57	354,350.78	97,864.68	1,966,855.63	98,071.50 2,064,927.13
33.00	IN-SERVICE TRAINING											
33.01	Herbarium Management Courses		50,238.18	29,486.98	69,767.34			-	-		99,254.32	99,254.32
33.01.1	Regional	3.2			10,718.25	22,578.74	22,313.63	2,847.71			58,458.33	58,458.33
33.01.2	National	1.5, 3.2			-	-	3,739.59	-	-		3,739.59	3,739.59
33.02	Botanical Gardens Management Courses	6.10		84.08	-	22,089.76	7,565.30	414.20			30,153.34	30,153.34
33.03	Field collecting expeditions			2,701.07	12,901.80			-	-		15,602.87	15,602.87
33.03.1	Regional expeditions	2.7			21,822.86	30,859.93	22,451.43	19,508.25			94,642.47	94,642.47
33.03.2	National expeditions	5.4			12,720.79	9,144.87	5,035.82	-	-		26,901.48	26,901.48
33.04	Post graduate studies	1.7		4,800.08	33,621.88	76,209.15	77,525.04	60,436.20	42,040.18	1,421.65	296,054.18	296,054.18
33.99	Sub-total: In service training		50,238.18	36,988.13	116,375.10	121,471.05	162,198.34	121,541.97	64,810.34	1,421.65	624,806.58	624,806.58
39.00	Training component total		50,238.18	36,988.13	116,375.10	121,471.05	162,198.34	121,541.97	64,810.34	1,421.65	624,806.58	624,806.58
40.00	EQUIPMENT											
41.00	Expendable equipment											
41.01	National Herbaria	R/C	4,260.08	54,370.71	41,268.72	32,609.86	50,125.01	45,481.06	80.90	228,196.34		228,196.34
41.02	Coordinator's office	R/C	13,703.78	20,530.13	12,043.08	10,705.05	9,786.76	27,035.67	15,253.52	16,739.66	95,354.21	95,354.21
41.03	IT office	R/C				1,616.66	3,521.51	3,363.10	2,048.51	10,549.78		10,549.78
41.99	Sub-total: Equipment		13,703.78	24,790.21	66,413.79	51,973.77	44,013.28	80,682.19	64,097.68	18,869.07	334,100.33	334,100.33
42.00	Non-expendable equipment											
42.01	Computers and peripherals		2,298.40	34,462.20	48,163.95					82,626.15	7,000.00	89,626.15
42.01.1	Computers and peripherals IT section	3.1, 3.4			29,859.60	26,125.54	8,515.79	5,575.85	326.17	70,402.95		70,402.95
42.01.2	Computers and peripherals Others	3.4			1,805.39	3,581.71	3,986.96	9,206.36		18,580.42		18,580.42
42.01.3	Computers and peripherals Gardens	6.5				-	2,885.00	-	-	2,885.00		2,885.00
42.02	Geographic Positioning Systems			189.38	293.11	270.00	-	-	-	752.49		752.49

APPENDIX A

Breakdown of the overall Project Budget (continued)

Project Title: SABONET Project Number: RAF/97/G33/F/1G/99												
B/L	Description	Reference to logframe	PAID	To 1998	1999	2000	2001	2002	2003	2004	TOTAL 2005 (Budget)	TOTAL
42.03	Freezers			2,146.18	785.25		640.81	-	-		3,572.24	3,572.24
42.04	Microscopes			7,365.13	3,555.27	3,271.52	14,944.84	727.91	3,958.77		33,823.44	33,823.44
42.05	Microwave ovens			-	371.20		406.61	-	-		727.81	727.81
42.06	Herbarium cabinets			1,359.66	19,584.73		9,060.84	20,459.95	-		50,465.18	50,465.18
42.07	Vehicles			-	195,358.54	52,448.77	-	-	-		247,807.31	247,807.31
42.08	Other equipment					7,363.23	13,844.58	25,092.81	5,056.28	252.34	51,609.24	51,609.24
42.99	Sub-total: Non-expendable Equipment		2,298.40	45,522.55	268,062.05	92,943.12	67,098.61	61,263.17	18,577.86	9,784.87	563,252.23	570,252.23
45.00	Operation and Maintenance of equipment											
45.01	Vehicles	R/C			3,586.79	19,538.52	25,964.33	16,666.38	13,624.77	31.07	79,411.86	79,411.86
45.02	Other equipment	R/C		376.86	1,169.66	6,968.90	7,154.96	2,066.49	631.11		18,367.98	18,367.98
45.99	Sub-total		-	376.86	4,756.45	26,507.42	33,119.29	18,732.87	14,255.88	31.07	97,779.84	97,779.84
49.00	Equipment Component Total		16,002.18	70,689.62	339,232.29	171,424.31	144,231.18	160,678.23	96,931.42	28,685.01	995,132.40	1,002,132.40
50.00	MISCELLANEOUS											
52.00	Reporting Costs											
52.01	Terminal reports				-				1,179.00		1,179.00	1,179.00
52.02	Technical reports		12,375.48	16,257.76	19,283.98			-			35,541.74	35,541.74
52.02.1	SABONET Newsletter	2.5				7,916.96	11,791.14	12,330.93	6,830.79	6,133.41	45,003.23	51,503.23
52.02.2	SABONET Report series	2.6, 5.5			36,690.48		5,403.41	6,251.85	22,601.05	51,346.60	122,293.39	235,293.39
52.02.3	National Red Data Lists							-	-			-
52.03	Dissemination of Publications	2.6, 5.5						-	22,804.51	33,065.63	55,870.14	114,870.14
52.04	Editing of Publications	R/C						-	35,898.48	109,152.86	145,051.34	175,051.34
52.99	Sub-total		12,375.48	16,257.76	19,283.98	44,607.44	17,194.55	18,582.78	89,313.83	199,698.50	404,938.84	618,438.84
53.00	Sundries		11,067.60	6,759.03	378.23	384.93	-	-	-		7,522.19	7,522.19
54.00	Support costs											-
54.01	UNDP country offices (3% pro rata)	O/H				16,866.12	71,950.13		-		88,816.25	118,816.25
59.00	Miscellaneous Component Total		23,443.08	23,016.79	19,662.21	61,958.49	89,144.68	18,582.78	89,313.83	199,698.50	501,277.28	744,777.28
	Interest & Bank Charges (countries)			(174.02)	538.13	167.94	1,599.67	551.18	1,979.12	48.11	4,710.13	4,710.13
	Profit & Loss due to exch. rate changes			10,375.41	8,642.10	14,048.87	16,873.54	2,888.40	14,982.16	67,810.48	26,428.50	94,238.98
	Advances to Countries			195,569.00	(103,272.25)	3,181.00	(8,188.59)	99,134.18	(97,063.00)	12,480.75	101,841.09	101,841.09
99.00	GRAND TOTAL		237,847.00	450,356.59	681,339.73	707,270.37	771,399.89	811,395.31	525,304.65	340,198.70	4,262,432.59	4,637,433.59
	Original budget											4,725,000.00
	Saving to fund planned future expenditure											(87,566)

APPENDIX B

Terminal Review of the SABONET Project
by Stella Simoya (Team Leader) and Jonathan Timberlake



TERMINAL REVIEW of the Southern African Botanical Diversity Network

("Inventory, evaluation and monitoring of botanical diversity in southern Africa:
a regional capacity and institution building network (SABONET)")

GEF/UNDP PROJECT RAF/F97/G33
(APRIL 1998 TO MAY 2005)
PIMS 160

Stella Simiyu (Team Leader)
Jonathan Timberlake

5 April 2005
(Revised November 2005)



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List of acronyms

ABGN	African Botanic Gardens Network
AETFAT	Association for the Taxonomic Study of the Flora of Tropical Africa
APC	African Plants Checklist
API	African Plants Initiative
APR	Annual Project Report
BGCI	Botanic Gardens Conservation International
BOZONET	Botanical and Zoological Taxonomic Network for Eastern Africa
CBD	Convention on Biological Diversity
CITES	Convention on the International Trade in Endangered Species of Flora and Fauna
COP	Conference of Parties
GBIF	Global Biodiversity Information Facility
GEF	Global Environment Facility
GSPC	Global Strategy for Plant Conservation
GTI	Global Taxonomy Initiative
IABIN	Inter-American Biodiversity Information Facility
IPA	Important Plant Areas
IT	Information Technology (basically linked to computer systems)
IUCN	The World Conservation Union
IUCN ROSA	The World Conservation Union, Regional Office for Southern Africa
IUCN-SSC	The World Conservation Union Species Survival Commission
M and E	Monitoring and Evaluation
MDG	Millennium Development Goals
MSB	Millennium Seed Bank, Kew, UK
NBI	National Botanical Institute, South Africa
NBSAP	National Biodiversity Strategy and Action Plan (a CBD requirement)
NETCAB	Networking and Capacity Building Programme
NGO	Non Governmental Organisation
PIR	Project Implementation Report (An Annual GEF Requirement)
POW	Programme of Work
PRECIS	Pretoria National Herbarium (PRE) Computerised Information System, South Africa
PROTA	Plant Resources of Tropical Africa
RBG KEW	Royal Botanic Gardens, Kew, UK
SABONET	Southern African Botanical Diversity Network
SADC	Southern African Development Community
SANBI	South African National Biodiversity Institute
SBSTTA	Subsidiary Body for Scientific, Technical and Technological Advice of the CBD
SCBD	Secretariat, Convention on Biological Diversity
SECOSUD	Service for the Environmental Conservation of Biodiversity and Sustainable Development
SEPASAL	Survey of Economic Plants in Arid and Semi-Arid Plants, Kew, UK.
SSC	SABONET Steering Committee
TOR	Terms of Reference
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
USD	United States Dollars
UNFCCC	United Nations Framework Convention on Climate Change
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature

Executive summary

1. The Terminal Review mission of the Southern African Botanical Diversity Network (SABONET) was undertaken from 17 February to 4 March 2005 with an aim to assess the relevance, performance and success of the project. In assessing project implementation, the team used the GEF review criteria of implementation approach, country ownership and drivenness, stakeholder participation and public involvement, sustainability, replication approach, financial planning, cost-effectiveness, and monitoring and evaluation.

2. The SABONET project was initiated in 1996 with initial co-funding from the United States Agency for International Development (USAID) through the Networking and Capacity Building Initiative (NETCAB) of the World Conservation Union's Regional Office for Southern Africa (IUCN ROSA) based in Harare, Zimbabwe. The project started on 1 April 1998, with UNDP as the implementing agency and South Africa's National Botanical Institute (NBI) as the executing agency. Whilst the expected end of project date was 1 April 2002, fluctuations in the currency exchange rates for the South African Rand to the US Dollar resulted in gains that allowed additional funds for the project to complete additional activities as recommended by the Mid-term Review (Timberlake and Paton 2001). The proposed project closing date will be 1 April 2005.

3. The SABONET project Development Objective or "Goal" was to **"Contribute towards sustainable human development in the southern African region through the effective conservation of natural resources"**. This goal was probably too broad and too ambitious for this type of capacity building project. There was no possibility for the project activities to contribute to sustainable human development directly. This affected the PIR project rating during the annual project evaluation. The Terminal Review evaluation however was undertaken based on the Immediate Objective or "Purpose" and not the development goal.

4. The Immediate Objective of the project was to "develop a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the ten countries of southern Africa, competent to inventory, monitor, evaluate and conserve the botanical diversity of the region in the face of specific development challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity".

5. The proposed project Outputs (Note—these would be Outcomes in recent terminology) were: (1) Trained professional southern African plant taxonomists, horticulturists and plant diversity specialists, (2) Formal establishment of a collaborating Southern African Botanical Diversity Network, (3) Electronic information system on the region's plant diversity, (4) Production of regional human and infrastructural inventories, (5) Plant diversity evaluations and monitoring within the region and (6) Development of a regional botanic gardens conservation strategy. Following the SABONET Mid-term Review (Timberlake & Paton 2001), the following activities

were added under outputs 3, 5 and 6, thus (3b) Produce a Regional Poaceae checklist, (5b) Assess end-user needs at national level through consultative workshops and (6b) Develop a Threatened Plants Programme for the participating botanical gardens. Note that the word Regional refers to the ten-country design for the project, this is less than the SADC grouping which is usually called sub-regional.

6. While the SABONET project was conceived soon after the Convention on Biological Diversity (CBD) came into force and prior to the finalisation of the current programmes of work of the Convention, its design was visionary and robust and has enabled the ten southern African countries to contribute significantly to the implementation of the CBD, particularly within the framework of the Global Taxonomy Initiative (GTI) and the Global Strategy for Plant Conservation (GSPC).

7. The SABONET project has been exceptionally successful in a number of regards. Of the 45 project activities identified in the log frame, only three were later cancelled and two not fully achieved. The SABONET project has largely achieved its broad objective of building the regional human, infrastructural and institutional capacity. Further, it has successfully demonstrated the added value in strengthening south-south partnerships using local expertise and resources effectively and efficiently.

8. The log frame was revised annually by the SABONET Steering Committee and necessary modifications made in response to emerging needs in the context of the project. Annual work plans were based on the log frame that was used as a tool for monitoring, evaluation, and financial planning. All the regional annual reports reflect progress in the achievement of the activities, and highlight gaps and challenges.

9. The project ran a total of 22 in-house regional dedicated training courses using local resources and expertise in the fields of herbarium management (3), database management (7), plant identification of various taxonomic groups (5), environmental impact assessment (1), cycad conservation (1), botanical drawing (1) and field courses (1). Sixteen of these courses were held in South Africa while six were held in other countries in the region. Four courses were held at the national level (Namibia—Grass identification and PRE-CIS Computer course, Zambia—Herbarium Management and EIA, and South Africa—Cycad Conservation Course). Various Red listing courses were held at the national level to develop red lists and were supported in part by IUCN ROSA through the NETCAB funding. A critical element was the emphasis on needs-based training programmes. Each course was uniquely developed based on needs identified regionally and tailored accordingly. The foundation has been laid for future capacity building initiatives and the onus is on the institutions to maximise the experience gained and build on this at national and regional levels as need arises.

10. The SABONET project has provided an excellent model for networking at a regional level. The project has actively

strengthened networking within the 17 regional herbaria and 22 botanical gardens in the 10 participating countries. A network newsletter was published three times a year, with a mailing list of 905 people worldwide. A total of 23 issues have been published. High quality regional and national technical project publications were produced as the *SABONET Report Series*. Out of a total of 42 approved reports, 33 have been produced and eight are in press. Nineteen of these reports were national publications. Computer hardware and software were purchased for all herbaria, and computer networks put in place. One regional computer training course was held at the beginning of the project (1997) and six database management courses held in Pretoria (5) and Windhoek (1). However, there is need for sustained effort to maintain cutting edge technical and IT skills given the dynamic nature of the IT industry that may quickly render the SABONET investment obsolete.

11. A total of 186 participants attended the regional courses of which just over one third (37%) were female. While the project made efforts to ensure gender balance, this was constrained in part by prevailing institutional structures and establishments. In the second phase of the project, 75 internships were held within the region between herbaria and botanical gardens to strengthen the technical and research skills base depending on the specific institutional needs and priorities. Of the 22 MSc students sponsored by the project, 19 have completed their studies and three are due to complete their studies by the end of the year. Three recipients of SABONET scholarships excelled in their MSc degrees with distinction and two have proceeded to PhD. Registration. This initial core critical mass established by the SABONET project has the potential to strengthen capacity building in plant systematics and conservation at national and regional level.

12. Of the ten countries, only Namibia was able to database all their collections with 81,211 specimens even though they had initially starting data basing their collection using a different database (BRAHMS—Botanical Research and Herbarium Management System) and had to restart all over again with the PRECIS system. During the 2004/2005 period, the existing PRECIS databases have been migrated to the open-source MySQL platform to allow for greater flexibility and interoperability as well as easier interface with the newer Microsoft XP and Microsoft 2000 given that the earlier database structure was based on Microsoft 1997. In the later phase of the project database activity shifted to the computerisation of Poaceae with a better success rate. All the institutions managed to database 100% of their Poaceae except Botswana, Lesotho, Mozambique and Swaziland.

13. There is a threat of some databases at smaller institutions being orphaned—the databases will become non-functional. Perhaps, there are gains to be made in learning from initiatives such as IABIN and GBIF, link closely to African Plants Initiative (API) and African Plants Checklist (APC) as well other regional initiatives such as SEPASAL, MSB and PROTA, as a means of consolidating institutional information management systems. Every effort should be made to avoid fragmented database development at institutional

level due to opportunistic responses to project funding. This will allow better-targeted conservation and a stronger context to gain additional project funding, whether for research or practical conservation activities.

14. To strengthen the institutional capacity and meet the infrastructural needs identified for each of the ten countries, herbarium cabinets, computers and peripherals, microscopes and freezers were purchased. For field work, a Toyota Hilux 4x4 Diesel vehicle, camping equipment, cameras and GPS were also purchased through SABONET, and as a result of this, the project conducted 109 national field collecting expeditions during the project phase. SABONET has put in place institutional capacity and infrastructure upon which future initiatives and projects could build on as has been the case with incoming MSB and PROTA projects.

15. With additional support from IUCN ROSA's NETCAB Programme and using the SABONET framework, the SABONET Project organised national red listing workshops using the IUCN red listing criteria in all the ten countries and developed draft national red lists. Three Important Plant Area (IPA) Workshops were held in Namibia, South Africa and Mozambique and a regional IPA workshop held in South Africa prior to national IPA workshops. Countries with incomplete checklists and databases were constrained in reviewing and identifying IPAs at a national level. There are plans to follow up IPA workshop recommendations in Namibia potentially ensuring that a sustainable agenda for IPA is put in place at a national level. The progress by Namibia presents an excellent model for the other countries.

16. End-user workshops were held in all the SABONET countries and a summary of the findings are presented in the *SABONET Report No. 29*. However, the opportunity presented by these workshops to engage the wider community were not optimally utilised and there is room to strengthen this activity post-SABONET as a continuous consultation to ensure that the institutions deliver timely and relevant outputs. Various Threatened Plants Programmes were developed in the later phase of the project linked to the International Agenda for Botanic Gardens in Conservation (IA) and national red lists developed as part of the SABONET project in 22 botanical gardens in the region.

17. The retention of SABONET trained staff at national institutions is going to be a continuing challenge for some countries. The lack of an enabling environment, visionary leadership and poor salaries are issues that seriously affect staff retention and these have to be addressed in the long-term if benefits are to accrue from the SABONET investment. At a regional level, there is going to be a continued need for additional capacity building in biodiversity informatics and horticulture, in addition to plant taxonomy and conservation. However, SABONET has put in place appropriate linkages to pursue this in the long term.

18. Due to the capacity built by SABONET, national institutions were well placed to attract and absorb new projects and efforts were made to integrate and link these to SABONET. These include the Survey of Economic Plants in Arid

and Semi Arid Lands (SEPASAL) in Namibia (Royal Botanic Gardens, Kew); Millennium Seed Bank projects with South Africa, Namibia and Botswana (RBG, Kew); Plant Resources of Tropical Africa (PROTA) project in Malawi (Wageningen University, Netherlands); and the African Plants Initiative and African Plant Checklist projects (funded by the Mellon Foundation, with leadership from SANBI). SABONET intended to work closely with the SADC-Italian funded SECOSUD project, but with limited success, as this project was not completed. Indeed, without the SABONET foundation, it would not have been possible to implement such a wide array of projects.

19. SABONET has made a substantial investment in the region's human resource capital for plant research, conservation and sustainable use. Already, early signs indicate potential impact and benefit of this investment are visible. Staff trained under SABONET has moved to strategic positions within their national and regional institutions. For example, in Zimbabwe, one SABONET trained staff was moved to head the National Gene bank and the other became the Herbarium Curator for Namibia. Plant taxonomy and conservation are beginning to receive more attention in the policy and conservation arena e.g. Malawi (hosting the national CBD committee) and the development of the NBSAP in Botswana. Various SABONET trained staff have taken on teaching responsibilities at local Universities (Malawi, Zambia, Zimbabwe, Botswana and Mozambique) ensuring that a new generation of plant taxonomists and conservationists are trained.

20. Various SABONET staff (South Africa, Botswana and Malawi) have been actively involved in the CBD National Committees and delegations to the Conference of Parties and SBSSTA meetings, as well as being selected as national focal points for the Global Taxonomy Initiative (Namibia) and CITES focal points. The project outputs contributed significantly to various international conventions such as CBD, CITES, RAMSAR even though there was limited efforts by the project staff to package their outputs in relevant format to contribute to the national reporting to these Conventions.

21. In general, the degree of country ownership and drivenness varied between countries depending on two factors: the pro-activeness of the National Coordinator and members of the SABONET National Working Group (NWG) and the institutional mandate or position within the larger government structures. In instances where the National Working Groups were not effective, there was limited input from stakeholders in country to enhance country ownership and drivenness. There was a greater need to steer project outputs to address local needs more closely through a focus on other local initiatives and agendas such as work on medicinal, food and useful plants. These would provide relevance to agricultural, forestry, natural resource management sector and poverty eradication strategies and plans.

22. Due to the specific overall objectives and log frame being developed before most of the CBD POW and emerging NBSAPs and MDCs, there wasn't sufficient flexibility to al-

low countries to steer SABONET activities towards national needs. The imbalance between country resources, institutional capability and manpower affected the ability and willingness of countries to meet specified project outputs. Even though the project has come to an end, there has been limited effort at the national level to communicate the relevance of the project to its sectoral and development plans. However, it is anticipated that efforts will be made to rectify this situation in line with the recommendations from the end user workshops

23. Through a high-quality three-times-yearly newsletter with a global distribution list of 905, a *SABONET Report Series* and frequent presence at key international and regional meetings, SABONET became widely known as a flagship GEF taxonomic, capacity building and networking project. The limited uptake of these products outside the SABONET fraternity at national and regional level could be attributed to a very focused approach of SABONET (i.e. plant taxonomy, with limited conservation or tailored taxonomic products), while the emphasis on capacity building as the major output limited potential entry points for government stakeholders.

24. At the regional and international level, a significant impact of the project has been its project effectiveness in building linkages to the broader taxonomic and botanic gardens community. SABONET revitalized southern African botanical institutions' involvement in the taxonomic community working on the African flora (AETFAT) and made significant contributions to the AETFAT Congresses in Meise, Belgium (2000) and Addis Ababa, Ethiopia (2002). Its database experiences have been instrumental in the development of the African Plants Initiative and the African Plant Checklist project with linkages to the all the key botanical/plant taxonomic expertise in Africa, Europe and the USA. Through its activities with botanical gardens, SABONET has built strategic linkages to the African Botanic Gardens Network and Botanic Gardens Conservation International and has implemented various aspects of the International Agenda for Botanic Gardens in Conservation. Overall, the project has been more successful at the international level than was expected, and as successful at the regional level as could reasonably be expected.

25. A good indicator of the project replicability is the proposed GEF/UNDP Eastern Africa Botanical and Zoological Networks in Taxonomy (BOZONET), which has been modelled on SABONET. The outputs of SABONET have been up-scaled and replicated through the Africa Botanic Gardens Network, the African Plants Initiative and African Plant Checklist project, as well as related initiatives such as the MSB project, SEPASAL and PROTA. Some SABONET products have been replicated in-country. In addition, the SABONET project has delivered a strategic response to the GTI Programme of Work (POW) and set the southern African Parties ahead in its implementation. The Logical Framework developed well before the GTI POW provided an excellent fit to the delivery of its first three operational objectives.

26. SABONET was designed to be very cost-effective in delivering project objectives and exceeded expectations. No sig-

nificant budgetary adjustments were needed and the project delivered more outputs than initially planned. In delivering its major outputs, the project spent 62.1% of the budget on training, national staff (whose costs has been taken on locally after the project) and equipment. Only 6.3 % was spent on regional administration. In general, the administrative costs were kept low with 75% of the budget being spent in-country on project activities as defined by the log frame.

27. The SABONET project was very successful in leveraging additional funding and co-finance at national and regional level. At the initial phase, IUCN Regional Office for Southern Africa through its NETCAB funding supported the establishment of the Southern African Botanical Diversity Network before the GEF funding was released. Later, the NETCAB phase supported the Red Listing Training workshops at national level and the development of the National Red Lists. Thus, IUCN ROSA contributed USD 649,000 (which is more than the initial proposed USD 447,000 as Co-finance). Further, the governments and other national supporters provided USD 4,000,000 as co-finance, predominantly as in kind contribution through salaries, facilities and equipment.

28. The SABONET management structure was very effective. The project was very well managed with a very effective and functional Regional Office manned by three competent and highly qualified Regional Coordinators over the project lifetime. All the National Coordinators supported the choice of NBI as the executing agency and they noted that it was the best-placed institute in the region to carry out this role. It was agreed in principle that a rotating Secretariat would have been costly and ineffective. Participating institutions were comfortable with the Secretariat being based in South Africa, allowing access to key resources and universities.

29. The national implementing offices were based at the SABONET collaborating institution and had a National Coordinator who was usually the institutional head. The main setback was that the SABONET project added an extra burden on the busy heads of institutions and there was need for a dedicated project officer supported by the project. National Working Groups worked effectively in some countries less so in others.

30. Apart from the internal annual reports based on the log frame prepared by the national and regional offices, the project prepared UNDP Annual Project Reports (APR) and GEF/UNDP Project Implementation Reports (PIR) following the formats required in a timely and satisfactory fashion. UNDP did not have any issues of concern regarding project monitoring and evaluation. A Mid-term Review was undertaken in 2001 in addition to two project Tripartite Reviews, while an internal Terminal Review was conducted in 2004. Similar reports were prepared for the IUCN/USAID NETCAB funding. The appointed NBI auditors audited all funds annually.

31. The SABONET project model was very well designed to meet its objectives and highly replicable. It is however important to stress that SABONET has some unique elements that were responsible for its huge success that may not be easy to replicate in other contexts, but could be up-scaled.

These are: (a) a strong **project champion** with institutional, regional and international support and presence, (b) visionary yet **adaptable project leadership** and management, (c) a transparent and strong regional Steering Committee with **consistent membership** during the project phase chaired by a competent leader, (d) **willing, focused and motivated team players in a regional context**, and (e) **highly experienced and committed support** from the GEF Regional Advisor.

32. UNDP was the best placed implementing agency for the SABONET project as all the participating countries have a national UNDP office with the potential to support in-country implementation. SABONET had a development goal and its capacity building and institutional strengthening focus was directly linked to the UNDP mandate and focus in the region. Some UNDP offices were actively involved and interested in project activities and participated in National Working Groups (e.g. Namibia, Malawi, Botswana and South Africa). In South Africa, the UNDP office provided good support to the regional office. The GEF/UNDP Regional Coordinator provided timely and practical guidance for the project.

Follow-up actions

Recommended follow-up actions include:

Databases

- Follow up to finalize MOU on data sharing between the Namibia's National Herbarium (WIND) and SANBI. This could be used as a potential model for regional/bilateral data sharing agreements.
- SANBI needs to clarify its role and what potential support might be available to participating institutions concerning the PRECIS Specimen Database development, future upgrades, trouble-shooting and training. The SABONET National Coordinators should communicate their expectations clearly and agree modalities. It would be worthwhile to have some formal institutional agreement that would be valid post-SABONET.
- Institutions that have not completed data basing their specimens should set SMART targets on this activity and seek additional funding to complete it.

Red Lists

- Review national Red Lists, update them and disseminate results to the relevant agencies, especially those working on *in situ* and *ex situ* conservation.

End-user workshops

- Follow up on recommendations of the end-user workshops at a national level.
- Strengthen partnerships developed during the project.
- Explore ways and means to build linkages to relevant sectoral and national policies by working closely with the relevant agencies.
- Build linkages to the GTI and GSPC focal points and join forces to define and push forward a locally relevant national plant conservation and sustainable use agenda.

The SABONET Exit Strategy

The **national institutions** need to mainstream SABONET resources and capacity. Recommended activities include:

- Establish linkages to potential funding organizations, e.g. the Belgian GTI focal point funding for internships.
- Explore new sources of funding at local, regional and international levels and pursue them.
- Seek and clarify potential partnerships and linkages at national and regional level that may be useful in soliciting funds, and use these to develop new projects or programmes, based on national, bilateral and regional emerging priorities especially those which demonstrate relevance and provide strategic linkages and partnerships.
- Carry out strategic reviews to identify their strengths and relevance, e.g. to relevant thematic programmes and policy frameworks such as invasive species, useful plants and medicinal plants, which they could focus on to demonstrate relevance, ensure sustainability and attract local and regional support.
- Strengthen linkages between botanical gardens, Botanic Gardens Conservation International and the African Botanic Gardens Network, whilst herbaria should strengthen linkages to BioNET International and AET-FAT.

At the regional level, the **Steering Committee** needs to:

- Outline the linkages and legacy of the SABONET project in relation to the API and APC, and to other related projects such as the MSB, SEPASAL, GBIF, PROTA, and BGCI's African Small Grants Programme.
- Agree on pragmatic options for sustaining the SABONET network.
- Update the SABONET website and build links to national participating institution websites.

The SABONET legacy: What next?

- Each National Coordinator should produce a document on outlining how the project has benefited the

institution, country and region, including linkages to CBD (especially GTI, GSPC, IAS, PA), UNCCD, CITES and other environment and sustainable development agreements, and circulate this to relevant stakeholders, especially the CBD focal points.

- Collaborating institutions should compile the outcomes of the SABONET project in the context of the GTI and GSPC, present these to the CBD focal points and request that they be included in the country reports.
- Since the GTI is due for an in-depth review of progress in implementation at COP 8 (March 2006, Brazil) the SABONET Regional Office should produce a paper summarizing the experience of SABONET in implementing the GTI as a component of this review for southern Africa. This paper can be submitted by the GTI focal point of one of the participating institutions as an information document to SBSTTA 11. (Some of the SABONET National Coordinators are GTI focal points and could facilitate this, e.g. Botswana, Malawi and South Africa).
- In order to ensure long-term access to the excellent documents produced by SABONET and share experiences in building capacity for taxonomy at the national and regional level, the SABONET Regional Office should compile a CD-ROM/DVD of all electronic outputs (within acceptable copyright limits) and disseminate these. Copies should be made available to the CBD Secretariat and BioNET International libraries, amongst others. Consultations with the latter and the GTI Officer may provide further guidance. Any freely accessible electronic documentation should be availed to the CBD Clearing House Mechanism.
- Hard copies of all available literature should be disseminated to all key libraries to ensure continued access long after SABONET closes.
- A strategy for database updates and long-term maintenance should be formulated to avoid the in-country datasets being orphaned and abandoned, or worse still have the wheel re-invented through other funding mechanisms. Discussions with relevant stakeholders and links to the African Plants Initiative and GBIF may provide some alternative scenarios.



Aquatic Plant Identification Course in the Okavango Delta, Botswana. (Photo: C. Willis)

Introduction

In accordance with the GEF/UNDP Monitoring and Evaluation policies and procedures, all regular and medium sized projects supported by the GEF should undergo a final evaluation upon completion of implementation. The Terminal Review mission of the Southern African Botanical Diversity Network (SABONET) was undertaken from 17 February to 4 March 2005 by Ms Stella Simiyu (Secretariat, Convention on Biological Diversity and Botanic Gardens Conservation International—Nairobi, Kenya) and Mr Jonathan Timberlake (Biodiversity Foundation for Africa, Bulawayo, Zimbabwe).

The aim of the Terminal Review was to assess the relevance, performance and success of the SABONET project. The review sought to identify early signs of potential impact and sustainability of results including contribution to capacity development and achievement of environmental goals, as well as lessons learned with a view to make recommendations that might improve the design and implementation of other GEF/UNDP projects. In assessing project implementation, the team used the GEF review criteria of implementation approach, country ownership and drivenness, stakeholder participation and public involvement, sustainability, replication approach, financial planning, cost-effectiveness, and monitoring and evaluation. The detailed Terms of Reference for the Review are presented in Annex 1.

The review team used a variety of tools. These included a desk study of the SABONET project documentation, personal interviews with relevant staff and stakeholders, field visits, questionnaires, email and telephone consultations.

Various documents produced by SABONET, including min-

utes of the National Working Group and regional Steering Committee meetings, *SABONET Report Series* and SABONET News, UNDP Annual Project Reports and GEF Project Implementation Reports, annual and financial reports for each participating country, the SABONET Mid-term Review and Internal Terminal Review Report, were all reviewed.

Due to time constraints, only five countries (Botswana, Malawi, Namibia, South Africa and Zimbabwe) were visited during the review period. Earlier, one member of the review team, Mr. Timberlake, visited and reviewed the project in Mozambique on 22-23 November 2004. A brief meeting was held in Pretoria with the SABONET National Coordinators for Angola and Zambia on 4 March 2005. The itinerary for the review mission is presented in Annex 2 while the list of the people interviewed is included as Annex 3. The framework questionnaire used for the interviews during the country visits is presented as Annex 6 (a, b).

In order to ensure that adequate feedback from all SABONET participating countries was represented in the review process, a detailed review questionnaire was sent electronically to all the National Coordinators, including those in countries that were visited, and the responses submitted by email to the Team Leader within seven days. Responses were received from nine out of the ten countries, with no response received from Swaziland after telephone follow up. Telephone and/or email communication was used where necessary. A summary of the findings from the field visits and responses to the questionnaires is presented in Annex 4.

The preliminary findings of the review were presented by the review team to part of the SABONET Steering Committee.¹

SABONET project and development context

Relevance of the SABONET project

The ten countries that constitute southern Africa (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe) comprise less than two percent of the world's land area but contain 10% of the global flora found in ecosystems of global importance. Examples of these include:

- 17 centres of plant diversity identified by the IUCN/WWF global review,
- arid and semi-arid ecosystems including the whole of the Karoo-Kalahari-Namib region comprising 46% of the world's succulent flora,
- the Cape Floristic Kingdom, the richest centre of botanical diversity and endemism worldwide,
- the Okavango Delta and Kafue wetlands, besides several RAMSAR and World Heritage Sites,
- unique forest ecosystems such as the Guineo-Congolian

forests of Angola, Zanzibar-Inhambane coastal forests of Mozambique, and various Afromontane forests,

- Mountain ecosystems such as Mount Mulanje in Malawi, the Maluti-Drakensberg of South Africa and Lesotho and the Chimanimanis of Mozambique and Zimbabwe.

With varied threats such as a high human population, land degradation and unsustainable natural resource extraction compounded with high levels of urbanisation, many of these ecosystems that are of local, national, regional and global significance are under threat and many species are endangered. Only 6% of the region falls within the protected area network. However, the institutional capacity and capability within the region to carry out botanical inventory, monitoring and conservation was weak, and totally lacking in some countries, and there was hardly any regional coordination or collaboration. In order to address these challenges, a meeting of southern African botanists was held in Maputo,

¹ Chair of the regional SABONET Steering Committee (Prof. Brian Huntley), SABONET National Coordinator, South Africa (Prof. Gideon Smith), SABONET Regional Coordinator (Yalande Steenkamp), Christopher Willis (former SABONET Regional Coordinator) and two representatives from the regional Steering Committee, Angola (Prof. Esperança Casta) and Zambia (Dr Patrick Phiri).

Mozambique in February 1990 leading to the formation of an informal "Network of Southern African Plant Scientists (NESAPS)". The participants agreed that priority should be given to capacity building and institutional support at a regional level, but due to lack of funding they were not able to move forward.

Several related conferences and workshops were held at national and regional levels to develop action plans. The meetings reviewed the regional/national patterns of botanical diversity, conservation status, research, infrastructure and training needs, socio-economic potential and priorities for action. As a result of two regional conferences in 1993 (Bulawayo, Zimbabwe and Cape Town, South Africa), a consensus was reached to raise funds for a regional project to address these needs and the gaps identified. The baseline was identified as poorly researched botanical diversity with few trained botanists in permanent posts working with poor facilities that compromised the ability of the institutions and staff to make any meaningful contribution to the study, conservation and sustainable use of botanical diversity. The focus of the project would be to establish a regional network and to urgently establish a regional capacity building and infrastructural support programme.

The Southern African Botanical Diversity Network project was initiated in March 1996 with initial co-funding from the United States Agency for International Development (USAID) through the Networking and Capacity Building Initiative (NETCAB) of the World Conservation Union's Regional Office for southern Africa (IUCN ROSA), based in Harare, Zimbabwe. The full GEF funding was accessed in September 1997 and the official starting date of the four-year full GEF/UNDP project was 1 April 1998, with UNDP as the implementing agency and South Africa's National Botanical Institute (NBI) as the executing agency. The project sought to ensure cost effectiveness by strengthening south-south development, regional collaboration to share collective skills in the region, and to develop local solutions to local problems using local capacities, technologies and resources where available. Whilst the expected end of project date was 1 April 2002, fluctuations in the currency exchange rates for the South African Rand to the US Dollar resulted in gains that allowed additional funds for the project to complete additional activities as recommended by the Mid-term Review (Timberlake and Paton 2001). The proposed project closing date will be 1 April 2005.

The SABONET project development objective was to "Contribute to the sustainable human development² in the southern African region through the effective conservation of natural resources".

The immediate objective of the project was to "develop a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the ten countries of southern Africa, competent to inventory, monitor, evaluate and conserve the botanical diversity of the region in the face of specific development challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity".

The IUCN ROSA co-finance budget through the NETCAB project (1995-1998) was USD 447,000 while the GEF support through UNDP was USD 4,656,000. The annual staff and operating budgets of the participating institutions provided the in-kind contribution by respective governments was estimated at USD 7,905,000 for the entire project phase. The target beneficiaries of the project were the national or main functional herbaria and botanical gardens in the participating countries that would use the project outcomes to enable them to fulfil their obligations to the Convention on Biological Diversity and other international conventions.

Implementation

The SABONET project was managed and administered through the National Botanical Institute (NBI), now the South African National Biodiversity Institute (SANBI). NBI provided the office space and additional infrastructural support³ through its National Herbarium, Pretoria (PRE), South Africa, where the SABONET Regional Office was based.

A Regional Coordinator, project Financial Officer and an Administrative Assistant were hired by NBI to run the regional office. To expedite their work, clear guidance was provided in the project document on their Terms of Reference, financial and reporting arrangements to the GEF, UNDP and other donors. In addition, terms of reference were initially outlined for a Herbarium Research Officer and a Technical Research Assistant, to be appointed in the national participating institutions, whose costs were met by the USAID/IUCN ROSA funding. Their main role was to facilitate field studies, research and curate the plant collections.

Expected performance and success of the project

The expected outputs of the SABONET project as defined in the initial Project Document (Huntley *et al.*, 1998) are outlined in Table 1.

However, after the SABONET Mid-term Review (Timberlake & Paton 2001), the following activities were added under outputs 3, 5 and 6:

- 3b. Produce a Regional Poaceae checklist.
- 5b. Assess end-user needs at the national level through consultative workshops.
- 6b. Develop a Threatened Plants Programme for the participating botanical gardens.

² The proposed goal for the SABONET project was probably too broad and too ambitious for this type of capacity building project. There was no possibility for the project activities to contribute to sustainable human development directly. This affected the PIR project rating during the annual project evaluation. The Terminal Review evaluation, however, has been undertaken based on the overall objective and not goal.

³ For example, meeting rooms, equipment and accommodation facilities for the regional training courses.

Table 1. Expected outputs of the SABONET project as defined in the initial Project Document.

Expected output	Verifiable indicators
1. Trained professional southern African plant taxonomists, horticulturists and plant diversity specialists	33 postgraduate biodiversity specialists, 39 Para taxonomists, 16 living collections managers, 14 MSc/PhD biodiversity specialists
2. Formal establishment of a collaborating Southern African Botanical Diversity Network	Functional Steering Committee, Project Coordinators office, National Working Groups
3. Electronic information system on the region's plant diversity	Notional and regional databases for botanical diversity information
4. Production of regional human and infrastructural inventories	Publication of reports based on surveys done within the region
5. Plant diversity evaluations and monitoring within the region	Publication of notional and regional checklists, red data lists and conservation strategies
6. Development of a regional botanic gardens conservation strategy	Publication of a Southern African Botanical Gardens Conservation Strategy

Project formulation

Implementation approach

Whilst the SABONET project was conceived soon after the Convention on Biological Diversity (CBD) came into force and prior to the finalisation of the most of the current programmes of work of the Convention, its design was visionary and robust and indeed has enabled the ten southern African countries to accelerate progress in the implementation of the CBD, particularly within the framework of the Global Taxonomy Initiative (GTI)⁴ and the Global Strategy for Plant Conservation (GSPC).⁵

The SABONET project has inadvertently delivered a strategic response to the GTI Programme of Work (POW) and set the southern African Parties ahead in its implementation. The Logical Framework developed well before the GTI POW provided an excellent fit to the delivery of its first three operational objectives.

The Programme of Work (POW) of the GTI elaborates five operational objectives as indicated below:

- Assess taxonomic needs and capacities at national, regional and global levels for the implementation of the Convention.
- Provide focus to help build and maintain the human resources, systems and infrastructure needed to obtain, collate, and curate the biological specimens that are the basis for taxonomic knowledge.

- Facilitate an improved and effective infrastructure/system for access to taxonomic information, with priority on ensuring that countries of origin gain access to the information containing elements of their biodiversity.
- Within the major thematic work programmes of the Convention, include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components.
- Within the work of cross cutting issues of the Convention, include key taxonomic objectives to generate information needed for decision-making in the conservation and sustainable use of biological diversity and its components.

Seven of the 16 outcome targets of the GSPC are of direct relevance to the SABONET log frame. These are:

- **Target 1:** A widely accessible working list of known plant species, as a step towards a complete world flora.
- **Target 2:** A preliminary assessment of the conservation status of all known plant species, at national, regional and international level.
- **Target 5:** Protection of 50% of the most important plant areas for plant diversity assured.
- **Target 8:** 60% of threatened plant species in accessible ex situ collections, preferably in the country of origin, and 10% of them included in recovery and restoration programmes.

⁴ The aim of the GTI is to enable the provision of appropriate taxonomic information and capacity to underpin decision-making in the conservation of biological diversity, sustainable use of its components and equitable sharing of the benefits derived from the utilisation of these resources. This is to be achieved by addressing (a) the lack of taxonomic information, and (b) the need to build capacity for taxonomic activity (Homdolloh Zedon, 2003, in GTI Programme of Work Brochure, CBD Secretariat, 2003).

⁵ The ultimate and long-term aim of the GSPC is to halt the current and continuing loss of plant diversity. It emphasizes the need for capacity building, especially in developing countries, in order to achieve the 16 outcome oriented global targets by 2010 (CBD Decision VI/9).

- **Target 14:** The importance of plant diversity and the need for its conservation incorporated into communication, educational and public awareness programmes.
- **Target 15:** The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of the Strategy.
- **Target 16:** Networks for plant conservation activities established or strengthened at national, regional and international levels.

The log frame was revised annually by the SABONET Steering Committee and necessary modifications made in response to emerging needs in the context of the project. After the Mid-term Review, new elements linked to GTI operational Objective 5 and the GSPC (i.e. Red Lists, IPA workshops, threatened plants programmes and end-user workshops) were incorporated into the log frame and implemented. Three activities related to the digitisation of vegetation maps of major vegetation types, biomes and ecosystems within the region (Activity 5.2), production of relational databases in GIS formats (which formed a bulk of the SECOSUD linked activities) (Activity 5.3), and evaluation of the conservation status of selected vegetation types/ecosystems/biomes per country and region (Activity 5.10) were cancelled.

Annual work plans were based on the log frame that was used as a tool for monitoring, evaluation, and financial planning. All the regional annual reports reflect progress in the achievement of the activities, and highlight gaps and challenges.

Linkages and partnerships

There was opportunity in the latter part of the project to review the log frame and streamline it in line with emerging relevant CBD POW and GEF mandates. In addition, there was opportunity to consider national differences in capacities and priorities, and to contextualise these in the log frame. It is apparent that the traditional model of herbaria and botanical gardens, with associated structures/mandates/practices, still largely defines the framework of operation and thinking in many national institutions in the region. This has limited the ability of these institutions to redefine themselves in order to fit their local contexts and deliver timely outputs. The potential benefits of thinking 'out of the box' was well illustrated by the threatened plants programmes in which a regional objective was expressed differently at the national level and tailored to national needs and priorities as was the case of *Hoodia* propagation⁶ in Namibia and the extinction garden⁷ in the Kirstenbosch National Botanical Garden, South Africa. SABONET provided an opportunity for a paradigm shift on institutional roles and practices. The project could have internalised this through the log frame

and added value to institutional outputs to ensure sustainability and institutional growth.

Various related initiatives that emerged during project implementation, such as the Inter-American Biodiversity Information Network (IABIN) and the Global Biodiversity Information Network (GBIF), could have informed new thinking and delivery of outputs for SABONET, especially in the area of minimum international standards for interoperability and development of national nodes within the context of distributed data networks. South Africa progressed well in this aspect as SANBI will soon develop the South African Biodiversity Information Portal. There has been limited consideration of such options by the other participating institutions. However, it will be necessary for these issues to be considered in the context of emerging initiatives such as the African Plants Checklist and African Plants Initiative.

Various national and regional UNDP, GEF and other donor-funded projects were implemented during the SABONET project. Efforts were made to integrate various national initiatives and link these to SABONET, such as the Survey of Economic Plants in Arid and Semi Arid Lands (SEPASAL) in Namibia (Royal Botanic Gardens, Kew); Millennium Seed Bank projects with South Africa, Namibia and Botswana (RBG, Kew); Plant Resources of Tropical Africa (PROTA) project in Malawi (Wageningen University, Netherlands); and the African Plants Initiative and African Plant Checklist projects (funded by the Mellon Foundation, with leadership from SANBI). SABONET intended to work closely with the SADC-Italian funded SECOSUD project, but with limited success as this project was not completed.

Other relevant GEF projects included the UNDP/IUCN/SADC Southern Africa Biodiversity Programme (regional); Mount Mulanje Conservation Trust (Malawi); Biodiversity Strategy for Lesotho; Biodiversity Conservation Strategy and Action Plan (Botswana); Lake Malawi/Nyasa Biodiversity Project (Malawi) and the Okavango River Basin Project (Angola, Botswana and Namibia).

SABONET project expertise was used in field surveys and assessments (e.g. the Malawi NORAD and JICA-supported biodiversity projects) and relevant outputs were filtered into national policy processes such as Red Lists and checklists in the Botswana Conservation Strategy. However, this only happened when there were strong National Working Groups in place to build the strategic linkages.

These partnerships, and many more, were developed at national and regional level although this was not explicitly elaborated in the log frame. Yet they form potential exit strategies for some of the SABONET activities. However, in some countries, such as Botswana and Namibia, strong

⁶ Two species of *Hoodia* are harvested from the wild for medicinal purposes. In Namibia the project sought to develop propagation techniques that would allow local communities and farmers to produce these species sustainably and meet market demands, thereby assuring conservation of the wild resources, income generation and sustainable livelihoods.

⁷ The extinction garden within the Kirstenbosch National Botanical Garden contains Red List taxa with appropriate interpretation. The aim is to get the extinction message across to the public by putting a 'face' to the red lists.

partnerships were developed with the UNDP, CBD and GEF focal points. Partnerships were weaker in countries such as Zimbabwe and Zambia where the institutional structure did not provide direct linkages.

Country ownership and drivenness

All ten participating countries, except Angola and Namibia, had signed and ratified the CBD at the beginning of the SABONET project. However, they were all keen to participate in the project and the NETCAB funding from USAID/IUCN ROSA was used to support activities for non-party countries until they had ratified the convention and became eligible to receive GEF support. Further, the countries have gone ahead and developed various policy and legal instruments for the conservation and sustainable use of biodiversity in line with the principles of the CBD such as National Biodiversity/Conservation Strategies and Action Plans.

In some instances, SABONET has responded to priorities outlined in these plans or informed their development. For example, in Botswana, SABONET project outputs have been incorporated into the NBSAP and will be incorporated into the 10th National Plan. In Malawi, the project was directly linked to the CBD as the Herbarium chairs the National Biodiversity Committee. Various government officials were involved in the National Working Groups, e.g. in Botswana and Namibia, where the CBD focal point was actively involved in project. However, this was not consistent throughout the region.

In general, the degree of country ownership and drivenness varied between countries depending on two factors: the proactiveness of the National Coordinator and members of the SABONET National Working Group (NWG) and the institutional mandate or position within the larger government structures. The role of the National Working Groups⁸ was to help strengthen country ownership of the project activities and ensure that they were implemented in a timely and appropriate manner. It was also the reason behind their broad composition that included representatives from the Government (Ministry of Environment), NGOs (e.g. IUCN, WWF), national *in situ* and *ex situ* conservation agencies, universities and other research institutions.

For example, the National Botanical Research Institute in Namibia has a specific mandate within the Ministry of Agriculture that allowed it to fully integrate and implement all SABONET activities within one institution. As an active member of various national committees, and with a strong NWG that also has strong stakeholder representation from the line Ministry, UNDP and university, the project was fully country-owned and integrated and hence became a great success. The situation was different in South Africa where the project was implemented through a few sections of the

larger NBI, and therefore the NWG was not made up of national representatives of key agencies but rather experts and practitioners in similar fields from across the country. In the case of Botswana, the project was run out of both the National Museum and University with a broad range of stakeholders on the NWG who were not always consistent in their attendance.

However, one of the key indicators of success has been government commitment to sustain project maintained staff after the project finishes (e.g. Malawi, Namibia, Zimbabwe, and South Africa), while in Lesotho and Botswana government policy did not offer such options. In countries where there was limited country ownership of the project, limited government resources were available post-SABONET to sustain activities initiated, e.g. data basing. Although capacity and resources have been developed, in many cases there has been limited uptake of the output by government agencies and stakeholders, as they perceived that institutions rather than countries owned and drove the project and hence the outputs were for internal use.

Whereas various reports and publications have been developed by SABONET, very few are in use outside the SABONET fraternity. This could be attributed to a very focused approach of SABONET (i.e. plant taxonomy, with limited conservation or tailored taxonomic products), while the emphasis on capacity building as the major output limited potential entry points for government stakeholders.

Even though the project has come to an end, there has been limited effort at the national level to communicate relevance of the project to its sectoral and development plans. For example, apart from the regional publications such as Willis & Smith (2004),⁹ which demonstrates the linkage and utility of SABONET outputs to prevailing needs and priorities, there are no equivalent in-country publications and reports synthesizing the project's outputs at a national level and the relevance to key national processes such as CBD national reporting.

Stakeholder participation and public involvement

The SABONET project had many stakeholders both within the botanical/taxonomic community and end-users. The outreach and public awareness strategy was one of the great successes of SABONET.

Through a high-quality quarterly newsletter with a global distribution list of 905, a *SABONET Report Series* and frequent presence at key international and regional meetings, SABONET became widely known as a flagship GEF taxonomic, capacity building and networking project. The SABONET Chair and Regional Coordinator and various National Co-

⁸ They were responsible for prioritizing the capacity building options, ensuring the candidates selected were appropriate and facilities and resources were adequate to meet the national needs, and that staff were hired in a transparent manner based on institutional/local policy.

⁹ Willis C.K. & Smith G.F. 2004. The Global Strategy for Plant Conservation: implications for succulent plant conservation in southern Africa. *Aloe* 41: 1, 6-15

ordinators attended CBD Conference of Parties (COP) 5 as members of their national delegations and presented various talks at side events. This trend was followed at COP 6 and 7. In Malawi, the National Coordinator also chaired the National Biodiversity Committee and hence SABONET was involved in setting up the Mount Mulanje Conservation Trust.

At the regional and international level, the project was very effective in building linkages to the broader taxonomic and botanical gardens community. SABONET revitalized southern African botanical institutions' involvement in the taxonomic community working on the African flora (AETFAT) and made significant contributions to the AETFAT Congresses in Meise, Belgium (2000) and Addis Ababa, Ethiopia (2002). Its database experiences have been instrumental in the development of the African Plants Initiative and the African Plant Checklist project with linkages to the all the key botanical/plant taxonomic expertise in Africa, Europe and the USA. Through its activities with botanical gardens, SABONET has built strategic linkages to the African Botanic Gardens Network and Botanic Gardens Conservation International, and has implemented various aspects of the International Agenda for Botanic Gardens in Conservation. Progress by South Africa's eight National Botanical Gardens in implementing the activities associated with the International Agenda for Botanic Gardens in Conservation was internally reviewed by SANBI in 2004.

At the regional level, the project sought to build linkages to the SECOSUD project. Unfortunately, this project did not run to completion. Linkages were also built with other relevant national, regional and international programmes. For example, the SABONET Red Lists linked to the IUCN Species Survival Commission's Red Listing Programme, which brought together several in-country partners such as government, NGO and the private sector, including volunteers. The Threatened Plants Programme brought on board key partners and collaborators in botanical gardens linked to land, parks and wildlife managers and conservation agencies.

The regional and national field trips were designed to include national partners, including other research and conservation agencies such as forestry, wetland specialists and rangeland managers. As a result, towards the end of the project, new partners have been brought on board such as PROTA (Namibia) SEPASAL (Namibia), MSB, API, and the APC (various countries).

However, at the national level, the deliberate effort to build linkages to other stakeholders was only emphasized towards the end of the project following the recommendation by the Mid-term Review to organize end-user workshops in all participating countries. These workshops, however, did not adequately define and segregate the clients from the resource providers. Ideally, this was an opportunity for the taxonomic community to listen to its customers (government agencies, local communities, NGOs and research institutions) and

find out what they need most. The institutions would then go back home and ask themselves in a separate forum how they should deliver these outputs in the desired formats.

Unfortunately, the workshops tended to emphasize the taxonomic needs to make the practice more effective and efficient (manpower, resource development and mobilization, infrastructure, funding, etc). Therefore in a number of cases the end-user community was not able to clarify and define its needs. Overall, it was not clear what the true versus perceived needs were. This process is crucial to inform institutional strategic planning and even more so in the face of shrinking government budgets where institutions are forced to demonstrate relevance. The taxonomic and conservation community in southern Africa still have a unique opportunity post-SABONET to demonstrate their contribution to national poverty reduction strategies and action plans, health improvement (especially related to chronic diseases such as AIDS and malaria) and economic empowerment.

There has been effective dissemination of project results, publicity and awareness campaigns by the project, especially through the excellent newsletters and SABONET reports. Indeed, SABONET is known worldwide as a result of its effective communication strategy. The only weakness was that this was predominantly a one-way communication system and only occasionally required feedback and input from other stakeholders. The linkages to the private sector, local communities and NGOs in the evaluation of the project activities were limited.

Replication approach

The SABONET project model was very well designed to meet its objectives and highly replicable. It is however important to stress that SABONET has some unique elements that were responsible for its huge success that may not be easy to replicate in other contexts, but could be up-scaled. These are:

- A strong **project champion** with institutional, regional and international support and presence.
- Visionary yet **adaptable project leadership** and management.
- A transparent and strong regional Steering Committee with **consistent membership** during the project phase chaired by a competent leader.
- Willing, focused and **motivated team players** in a **regional context**.
- **Highly experienced and committed support** from the GEF Regional Advisor.

The most easily replicable elements are indicated below:

- A dedicated regional secretariat with Regional Coordinator, Administrative Officer and Finance Officer back-stopped by a credible and reputable institution, paid for by project funds.
- National Coordinators in leadership positions in national participating institutions with an ability to mobilize

¹⁰ However, this was a constraint in smaller institutions where the National Coordinators were overwhelmed as the SABONET reporting and project implementation took more than 50% of their time. A national project Secretariat with specially hired and project-funded officer would be preferable.

institutional resources to support project activities.¹⁰

- A regional Steering Committee operating on the consensus principle, comprising National Coordinators and chaired by the host institution, with meetings being held in the different countries where feasible and occasionally linked to other regional and international meetings.¹¹
- National Working Groups to support and facilitate national implementation with specific terms of reference, comprising strategically selected partners to enhance dissemination and uptake of project outputs as well as ensure country ownership and drivenness.¹²
- Common and/or shared boundaries, needs and priorities at various levels, e.g. SABONET-southern Africa, SADC political unit, shared phytochoria and flora, shared needs and priorities, plants.
- A set of partner institutions in-country with similar mandates, needs, priorities and aspirations carefully selected through consultation.¹³
- Strong executing agency with visionary and committed leaders to manage large project funding, internalise overheads and provide additional services such as financial management, international disbursement, auditing and reporting consistently over the project period (i.e. NBI).
- Highly motivated, competent and qualified staff at the regional office.
- Effective public awareness and project dissemination strategy such as through the use of dedicated websites, project report series and newsletters.
- Strong capacity building element with the ability to develop robust in-house training programmes backed with adequate and appropriate resources, including internships and short relevant courses.
- Ability of national participating institutions to provide resources in-country (staff, equipment and additional finances).
- A central regional vision and purpose, but flexible, to cater for different national priorities and needs; hence balance between regional versus national prioritised elements.

A good indicator of the project replicability is the proposed GEF/UNDP Eastern Africa Botanical and Zoological Networks in Taxonomy (BOZONET),¹⁴ which has been modelled on SABONET. The outputs of SABONET have been up-scaled and replicated through the African Botanic Gardens Network, the African Plants Initiative and African Plant Checklist project, as well as related initiatives such as the

MSB project, SEPASAL and PROTA.

Some SABONET products have been replicated in-country. Namibia is revising the national Red List and following up on the recommendations of the IPA and end-user workshops with the broader stakeholder community. This has been broadened to cover the whole biosystematics community. Some training courses have been replicated at national level, such as the Herbarium Techniques course in Zambia and the use of the NTSYS analysis package at the SADC Gene Bank through MSc training of Claid Mujaju (Zimbabwe) through SABONET. Botanical gardens projects started through the Threatened Plant Programme need to be reviewed through consultation with stakeholders' in-country and up-scaled as appropriate.

Cost-effectiveness

SABONET was designed to be very cost-effective in delivering project objectives and exceeded expectations. The project supported activities in-country, which strengthened biodiversity conservation activities in southern Africa (hot-spots, rangelands, forests, etc. of global value). It secured co-finance from IUCN ROSA and USAID, which was used before GEF funding set in. Later co-finance from NETCAB, NORAD and related projects SECOSUD, SEPASAL, PROTA projects was secured that allowed sustainability and uptake of project outputs. Project outputs clearly enabled countries to meet their obligations to the CBD, especially in relation to the GTI and GSPC targets, and checklists are key contributions to all the thematic CBD work programmes.

No significant budgetary adjustments were needed and the project delivered more outputs than initially planned. Expenditure breakdown is summarised below:

• Regional Office expenditure	(6.3%)
• Admin including SC, UNDP, missions	16.4%
• National SABONET Staff	24.4%
• Training	16.0%
• Publications	12.3%
• Field trips	3.0%
• Equipment	21.7%

In delivering its major outputs, the project spent 62.1% of the budget on training, national staff (whose costs has been taken on locally after the project) and equipment. Only 6.3 % was spent on regional administration. In general, the administrative costs were kept low with 75% of the budget being spent in-country on project activities as defined by the

¹¹ Partner institutions should preferably have equivalent mandates and scope, otherwise there should be enough flexibility in measuring delivery of outputs e.g. small vs. large institutions; differing mandates e.g. universities vs. national research institutions and government departments

¹² National Working Groups are effective if membership is carefully selected to meet project requirements and terms of reference are clarified at initial stages.

¹³ Sufficient logframe flexibility to allow needs of smaller institutions and relevant national needs to be met.

¹⁴ The BOZONET project to be implemented in Ethiopia, Kenya, Uganda and Tanzania builds on the SABONET model, but expands the concept to include zoologists. The project, currently at PDF B proposal stage, aims to deliver relevant and timely taxonomic products to end-users. This will be defined at end-user workshops to be held before the start of the project.

log frame, thus:

- National expenditure 78.7%
- Central expenditure 21.3%

UNDP comparative advantage

UNDP was the best-placed implementing agency for SABONET as all the participating countries have a national UNDP office with the potential to support in-country implementation. SABONET had a development goal and its capacity building and institutional strengthening focus was directly linked to the UNDP mandate and focus in the region.

Linkages between SABONET and other interventions

SABONET had the potential to strengthen linkages and contribute to the national needs and priorities, especially as related to:

- International policy frameworks—CBD, UNCCD, UNFCCC, CITES.
- National policy frameworks—poverty reduction strategy papers.
- National responses to MDGs, WSSD outcomes etc.
- Internal and sectoral policy and regulatory frameworks e.g. related to SADC.
- General public and local communities.
- The conservation agencies, wider botanical and taxonomic community.
- The donor community at national and regional level.

However, the project focused mainly on the wider taxonomic/botanical community, conservation agencies, and later on CBD related issues. Examples of sectoral linkages developed with the SABONET project are listed in Table2.

There was a greater need to steer project outputs to address local needs more closely through a focus on other local initiatives and agendas such as work on medicinal, food and useful plants. The SECOSUD project was set to work on this aspect but was not implemented as planned. Other interventions would have been through the botanical gardens focusing on cultivation protocols for indigenous useful plants following consultation with stakeholders to meet appropriate needs e.g. water-wise gardening in Botswana and Namibia, indigenous food, medicinal and useful plants in Zimbabwe, etc. These would provide relevance to agricultural, forestry,

natural resource management sector and poverty eradication strategies and plans.

Indicators of success

The SABONET project has been exceptionally successful in a number of regards. Of the 45 project activities identified in the log frame, only three were later cancelled and two not fully achieved. The indicators were well selected and suitable. Some of the significant successes include the following:

- Herbaria and botanical gardens needs assessments were done to establish baselines.
- Some 28 regional and national courses were developed in-house to meet local needs.
- A total of 26 postgraduate students were supported; six have progressed with alternative funding to the next level (3 PhD, 3 MSc).
- Networked and computer hardware and up-to-date PRECIS software in place in all 10 countries.
- Herbarium database in place in all ten countries at various levels of completion, Poaceae completed.
- Some 75 internships conducted and completed with many inter-institutional relationships developed.
- Various checklists (national, tree, Poaceae, Pteridophytes, Bryophytes, and a conservation checklist—Nyika) published.
- Storage cabinets for herbaria and field collecting equipment in place and in use.
- Relevant regional publications produced (e.g. regional *Index Herbariorum* and needs assessments) plus *SABONET Reports*.
- Initial steps to engage stakeholders—Threatened Plants Programme, Red lists and end-user workshops.
- Regional networks strengthened—AETFAT, ABGN.
- Website developed and maintained during the project phase.
- Newsletter produced and circulated internationally.
- Potential strategic partnerships developed.
- Greater visibility of southern African taxonomy, taxonomists and taxonomic products in international, regional and national forums.

Management arrangements

The management structure, i.e. a regional office with national implementing units guided by a regional Steering Committee and National Working Group respectively, was found to be

Table 2. Linkages developed by SABONET.

National and regional initiatives	Pan-African Initiatives
USAID/IUCN ROSA support from NETCAB for Red Listing (regional)	API project – Africo/Kew;
MSB project (South Africa, Namibia, Botswana, Malawi)	APC project – Geneva
IPA workshops (Namibia, Mozambique and South Africa)	PROTA – Wageningen
SEPASAL project - Kew (Namibia)	African Botanic Gardens Network
Tree Atlas project (Namibia)	AETFAT
Threatened Plants Programme (Namibia)	BGCI – African Small Grants Programme

very effective. The Regional Office¹⁵ comprised the Regional Coordinator, Financial and Administrative Officer, hired and administered by NBI. Their duties were determined by the SSC. All the National Coordinators supported the choice of NBI as the executing agency and they noted that it was the best placed institution in the region to carry out this role. It was agreed in principle that a rotating Secretariat would have been costly and ineffective. Participating institutions were comfortable with the Secretariat being based in South Africa allowing access to key resources and universities. SSC meetings were initially held in South Africa but later rotated to other countries. National Coordinators rated the regional staff as highly qualified, competent and they performed to expectation. Three different Regional Coordinators were in post during the project phase; the first was instrumental in giving SABONET its identity and momentum, which were maintained by the others. There was adequate budgetary allocation for the Regional Coordinator to visit the national

counterparts and provide support as needed, and this was greatly welcomed by the country teams.

The national implementing offices were based at the national SABONET collaborating institution and had a National Coordinator¹⁶ who was usually the institutional head. The main setback was that the SABONET project added an extra burden on the busy heads of institutions and there was need for a dedicated project officer supported by the project. As a result, all the accounting and reconciliation for the national expenditures was handled at the regional office. Some institutions (Namibia and Botswana) had problems in disbursement of funds and managing accounts. Namibia had to hire the services of another NGO to manage its funds, while Botswana held two different accounts, one with the University and the other with the central Treasury. This made accounting and access to funds very difficult and hampered national project implementation.

Implementation

Financial planning

Table 3 gives a breakdown of proposed expenditure (1998 columns) by category compared to assumed actual expenditures to the effective end of the project.

The proportion spent on administration is commendably low for such a complex regional project, showing that effective administration and coordination does not have to be financially onerous. Regional staffing costs (which exclude administrative positions) were also low, significantly less than for direct national staff costs. The proportion given to equipment was also very reasonable, and equipment was not considered to be a significant constraint to activities by most project participants. The great increase (10 times) in amount and proportion given over to publications presumably reflects changes recommended by the Mid-term Review. Training took up more than twice the funds originally allocated. Other proportions remained remarkably similar over the evolution of the project, 1998–2004.

Databasing costs by 2004 (2003 plus budgeted for 2004) were USD 894,075, or 19.2% of total project costs (IT staff and department, herbarium technical assistants and data capturers, 50% of regional country visits, 50% of national herbarium expendable equipment, computer equipment). It was a significant technical activity of the project.

Rough calculations of the proportion of expenditure for central coordination and administration, compared to na-

tional expenditure (which is assumed to include training and publications), are listed in Table 4.

The table shows that the proportion of expenditure going to national level, whether directly or indirectly, was three times that going to running the PMU and overall project costs, and significantly better (i.e. more national) than for many other regional projects.

Monitoring and evaluation

Apart from the internal annual reports based on the log frame prepared by the national and regional offices, the project prepared UNDP Annual Project Reports (APR) and GEF/UNDP Project Implementation Reports (PIR) following the formats required in a timely and satisfactory fashion. UNDP did not have any issues of concern regarding project monitoring and evaluation.

A Mid-term Review was undertaken in 2001 in addition to two project Tripartite Reviews, while an internal Terminal Review was conducted in 2004. Similar reports were prepared for the USAID/IUCN ROSA NETCAB funding. The appointed NBI auditors audited all funds annually.

Management by UNDP country offices

UNDP was responsible for the clearance and delivery of the project vehicles in-country and facilitated transactions of funds in Namibia. Some UNDP offices were actively in-

¹⁵ This was responsible for: planning all regional activities e.g. SSC, training, internships and regional field trips; preparing monthly statements of accounts, quarterly reports to UNDP, PIR; purchase and shipping of equipment as agreed by the SSC; disbursement of funds to national offices and authorizing local purchases; production of publications, newsletters; and upkeep of the website and communication.

¹⁶ The National Coordinator was the main accounting officer for the project at the national level and was responsible for the preparation of quarterly project reports; implementation of project activities at national level; coordination and intersectoral linkages at the national level; appointment and supervision of local SABONET staff; production of national publications; communication and public awareness; Chair of the National Working Group; national activities informed by and guided by a National Working Group whose stakeholders were defined in the Project Document.

Table 3. Breakdown of proposed expenditure compared to assumed actual expenditure.

Item	Nov 1998	% total	2004 ¹⁷	% total
Admin (incl. mission costs, country visits, Steering Committee, UNDP)	713,490	15.3	762,592	16.4
[Steering Committee + country visits alone]	[207,391]	[4.5]	[212,686]	[4.6]
Regional staff	273,521	5.9	293,713	6.3
National contract staff (+ country advances)	1,990,043	42.7	1,136,181	24.4
Training	322,829	6.9	743,411	16
Publications	54,348	1.2	574,062	12.3
Field trips	81,304	1.7	138,110	3
Equipment (incl. purchase, operation, maintenance)	1,220,465	26.2	1,011,629	21.7
TOTAL (USD)	4,656,000	99.9¹⁸	4,659,698	100.1

Table 4. Proportion of expenditure for central coordination and administration, compared to national expenditure.

	1998 costs	% total	2004 costs	% total
Central expenditure	1,045,707	22.5	994,092	21.3
National expenditure	3,610,293	77.5	3,665,605	78.7
TOTAL (USD)	4,656,000	100	4,659,698	100

volved and interested in project activities and participated in National Working Groups (e.g. Namibia, Malawi, Botswana, and South Africa). In South Africa, the UNDP office provided good support to the regional office. The GEF/UNDP Regional Coordinator provided timely and practical guidance for the project.

UNDP has been implementing a series of projects in the region and there was room for learning from each other's experiences. However, this opportunity was not well exploited, and room for strengthening linkages between projects was not provided. In Lesotho, for example, there was limited interaction between the SABONET project and other GEF/UNDP projects even though they were being implemented by similar organizations. But in Malawi there was a lot of synergy developed between different projects as the National Biodiversity Committee was hosted by the SABONET participating institution.

The links in some countries between the project framework and UNDP offices (e.g. Zimbabwe and Lesotho) were weak. In some instances, the UNDP national office should have played a more proactive role to help resolve some of the bottlenecks in national project implementation and assist National Coordinators to remove barriers in disbursement of funds (e.g. Botswana). Even though local UNDP were represented on the National Working Group, only some were

committed (e.g. Namibia), whereas staff turnover in other national UNDP offices (e.g. Malawi) affected continuity.

Coordination

The project was very well managed with a very effective and functional Regional Office manned by three competent and highly qualified Regional Coordinators over the project lifetime. Even though there was staff turnover, this did not hinder progress as the structures and operational guidelines were well defined at the beginning of the project and relevant institutional support structures within the host institution were in place. It was easy for the new officers to take over and continue to run smoothly.

The principle decision-making body within the SABONET project was the regional SABONET Steering Committee (SSC), which was constituted of the National Coordinators from the ten participating countries and chaired by the head of the NBI, Prof. Brian Huntley, for the entire project. The SSC met initially at least twice a year to review annual work plans and budgets, assess progress in project implementation, evaluate and make recommendations on the quality of training programmes and internships developed, as well as ensure that the best candidates received training support. It also reviewed financial arrangements with the funding agencies and facilitated linkages and collaboration with similar

¹⁷ Figures from Budget Revision of end 2003 (Document 9), with actual expenditure to end 2003 plus budgeted figure for 2004. Figures rounded to nearest USD.

¹⁸ Rounding errors.

activities in the region. Further, they sought to ensure that there was an adequate balance of resource allocation and use, and reviewed their ToRs from time to time.

In spite of the language barrier (Angola and Mozambique being Lusophone and the rest of the countries Anglophone), the SSC was very fortunate in having consistent able leadership of the Chair who also was bilingual and able to clarify many issues, having had background experience in one of the Lusophone countries (Angola). The SSCs were also attended by the GEF/UNDP Regional Coordinator, Dr Alan Rodgers who provided clarity and guidance on GEF/UNDP financial and policy matters and enabled the SSC to take appropriate decisions. These resulted in effective and transparent informed deliberations of great benefit for project implementation.

At the national level, the SABONET coordinating institution (usually the National Herbarium or a university Department of Botany) was identified and its head appointed as the National Coordinator. The institution provided administrative support for project implementation. A National Working Group was constituted, comprising representatives from key stakeholder institutions, including the UNDP, Ministry/Departments of Environment, Forestry, Agriculture and relevant NGOs, and chaired by the National Coordinator. Its main role was to oversee and coordinate national project implementation and make recommendations to the SSC, review annual work plans, monitor and ensure balance in allocation of funds to the various project activities and evaluate progress in achieving the capacity building and institutional strengthening targets. This worked effectively in a few countries but less so in others, which was attributed to the fact that some NWG members did not appreciate or under-

stand the role of taxonomy well enough and were not keen, while others were not consistent in attendance. In a few cases, members from other institutions expected funding support to be spread to other partners and were disappointed when this was not forthcoming. Most notably, human factors (institutional rivalry and personality differences) affected efficient working of some of the NWGs.

Operational issues

Efforts were made in the initial stages to streamline SABONET priority activities as needed with national/institutional activities and projects based on guidance and support in-country from the NWG and the SSC. However, due to the specific overall objectives and log frame being developed before most of the CBD POW and emerging NBSAPs, MDGs, etc, there wasn't sufficient flexibility to allow countries to steer SABONET activities towards national needs. In instances where the National Working Groups were not effective, there was limited input from stakeholders' in-country to enhance country ownership and drivenness. The imbalance between country resources, institutional capability and manpower affected the ability and willingness of countries to meet specified project outputs. For example, countries with small herbaria that were under-resourced, such as Lesotho, Swaziland and Botswana, the ability to mainstream and absorb SABONET activities was greatly limited compared with the larger more established national herbaria with diverse programmes and staff, such as those in South Africa, Namibia and Zimbabwe. A two-tier approach in defining expected outputs may have allowed flexibility to ensure country drivenness and ownership so that smaller countries could have focused on capacity building while the larger institutions focused on delivery of selected outputs.

Project results

Attainment of objectives

An analysis on the achievement of the proposed project outputs outlined in the Project Document is presented, and a rating on the achievement of specific activities is given in Annex 4.

EXPECTED OUTPUT 1: Trained professional southern African plant taxonomists, horticulturists and plant diversity specialists

The SABONET project has largely achieved its broad objective of building the regional human, infrastructural and institutional capacity. Various publications outline the progress and outcomes achieved by the SABONET project (Siebert *et al.* 2001, Willis and Huntley 2001, Huntley *et al.* 2002, Willis & Huntley 2001, Siebert & Smith 2003, Willis & Smith 2004, Siebert & Smith 2004) as well as the two project flagship publications, namely *SABONET News* (23 issues) and *SABONET Report Series* (42 issues planned, 8 in press). Siebert & Smith

(2004) in their paper,¹⁹ outline 23 successes from the project.

Various training courses were developed in-house based on priorities identified by the Steering Committee and recommendations made by the National Working Groups and participating institutions. The project ran a total of 22 in-house regional dedicated training courses using local resources and expertise in the fields of herbarium management (3), database management (7), plant identification of various taxonomic groups (5), environmental impact assessment (1), cycad conservation (1), botanical drawing (1) and field courses (1). Sixteen of these courses were held in South Africa, while six were held in other countries in the region.

By sharing the responsibility of hosting the regional courses in different countries, the opportunities for strengthening capacity and capability at regional level were multiplied. This was beneficial too in diversifying the skills base and making the training courses contextually relevant. Thus, these cours-

¹⁹ Siebert S. J. & Smith G. F. Lessons learned from the SABONET Project while building capacity to document botanical diversity in Southern Africa. *Taxon* 53 (1): 119–126.

es were innovatively designed to articulate locally relevant issues and solutions using local resources and expertise. The staff morale has been greatly enhanced and with the parallel provision of equipment and technical resources, the individual and institutional outputs increased substantially.

That four courses were held at the national level, (Namibia—Grass identification and PRECIS Computer course, Zambia—Herbarium Management and EIA, and South Africa—Cycad Conservation Course), indicated the emphasis on relevance and strengthening local capacity. The potential exists for national replication of similar and additional courses post SABONET. An obvious gap in the training courses were strategic modules in the area of leadership development and fund-raising, which are essential in developing institutional capacity to sustain these types of initiatives, given the constraints within national and/or institutional budgetary frameworks.

Various Red listing courses were held at the national level to develop red lists and supported in part by USAID/IUCN ROSA through NETCAB funding. This support was additional to co-finance already budgeted by IUCN ROSA and indicates again the opportunities available to the institutions to build on the baseline set up by the GEF support. Whilst the human and institutional capacity may have been limited, a clear articulation of strategic outputs provided a platform to leverage additional funding.

Priorities for postgraduate training were based on institutional needs. Of the 22 MSc students sponsored by the project, 19 have completed their studies and three are due to complete by the end of the year (2005). Three recipients of SABONET scholarships excelled in their MSc degrees with distinction and two have proceeded to PhD registration. Sixteen BSc Honours registered, 14 completed, while one student (Angola—Portuguese speaking) who was en-

rolled at the University of Cape Town discontinued due to language problems and the other individual from Botswana left the University of Witwatersrand (Johannesburg, South Africa) due to personal reasons. Eleven students (Botswana, Lesotho, Malawi, South Africa, Swaziland and Zambia) completed a combination of BSc Honours and MSc degrees in taxonomy and conservation studies.

The postgraduate training may provide the most enduring legacy of the SABONET project in many years to come. The core seed for the long-term development of human resource capacity for plant systematics and conservation has been established. However, the challenge will be to retain the staff at national institutions, if not within the region.

The summary of statistics on formal capacity building is presented in Table 5.

A total of 186 participants attended the regional courses of which just over one third (37%) were female. While the project made efforts to ensure gender balance, this was constrained in part by prevailing institutional structure and establishment. The male: female ratio varied between countries. In addition, the number of persons repeatedly attending courses varied between the countries, as countries with small herbaria and limited staff had the same people attending most of the courses.

In the second phase of the project, 75 internships were held within the region between herbaria and botanical gardens to strengthen the technical and research skills base depending on the specific institutional needs and priorities. The internships also involved expert visits to other institutions to provide technical support/training based on specific requests such as training in horticulture and nomenclature as well as in-country internships between different institutions (Botswana, South Africa). The internships were described by the participants

Table 5. A summary of statistics on formal capacity building.				
Country	Number of recipients of degree scholarships	Number of participants ²⁰ in regional courses (ratio Male/Female)	Number of regional courses attended	Number of internships
Angola	2	7 (2/5)	16	4
Botswana	2	18 (12/6)	21	12
Lesotho	3	12 (10/2)	18	3
Malawi	3	19 (17/2)	22	6
Mozambique	1	15 (9/6)	19	8
Namibia	4	13 (3/10)	21	9
South Africa	3	36 (22/14)	21	21
Swaziland	1	8 (6/2)	17	2
Zambia	3	32 (21/11)	23	4
Zimbabwe	4	26 (16/10)	22	6
Total	26	186 (118/68)	200	75

²⁰ These included resource persons in the countries where the regional courses were held, such as Botswana, Malawi, South Africa, Zambia and Zimbabwe.

are very productive and enriching. They provided the time and space to learn new skills, resolve long standing challenges within their own local contexts, strengthened personal professional relationships and networks and provided the much needed exposure especially for those from less resourced institutions. Some of these relationships have been maintained at personal levels and some at institutional level.

EXPECTED OUTPUT 2: Formal establishment of a collaborative Southern African Botanical Diversity Network

The SABONET project has provided an excellent model for networking at a regional level. The project has actively strengthened networking within the 17 regional herbaria and 22 botanical gardens in the 10 countries. In order to strengthen communication, the project installed email and Internet connectivity within all the participating institutions. It should be noted that without this project, chances of installing these facilities in some of the institutions were remote. The ability to communicate electronically was pivotal in strengthening the network as distances were minimised, resources shared and issues addressed on line. The indirect benefits to the project were with respect to time and travel cost savings.

A network newsletter was published quarterly, with a mailing list of 905 people worldwide. A total of twenty-three issues have been published. Regional and national technical project publications were produced as part of the *SABONET Report Series*. Out of a total of 42 approved reports, 33 have been produced and 8 are in press. In a sense, these were the lifeline and identity of the network. A dedicated SABONET website was developed and hosted by WildNet Africa (<http://www.sabonet.org>). The website is not currently active as the Project is seeking a new website host to maintain it as an archive. It is unlikely that both the network newsletter and report series will continue post SABONET but they have provided an excellent model for other projects and initiatives.

Nineteen of these reports were national publications. These included national checklists and family treatments for grasses (Botswana, Namibia, Zimbabwe, Lesotho, Angola and Swaziland); Pteridophytes (Swaziland) and Bryophytes (Zimbabwe). Some of these were the first publication by the national institutions. The SABONET project has therefore set the momentum and it is up to the institutions to maintain the momentum. The checklists are highly relevant to both the research and conservation communities. They provide excellent examples of SABONET outputs that institutions could use to demonstrate their relevance and raise their profile.

To enhance the sharing of field based skills and expertise, two regional field trips bringing together experts from the region were conducted, the Nyika Expedition (March/April 2000) (*SABONET Report No. 31*) and the southern Mozambique Expedition (November/December 2001).

A regional Steering Committee was established and initially met twice a year, with 15 meetings held to date and one planned at the end of the project. National Working Groups were established and worked effectively in some countries such as Namibia but less so in others (e.g. Zimbabwe and Malawi).

EXPECTED OUTPUT 3: Electronic information system on the region's plant diversity.

Computer hardware and software were purchased for all herbaria, and computer networks put in place. Due to continual need for upgrading, newer computers were purchased in the latter phases of the project to cope with changing software requirements for higher operating speed and RAM. One regional computer-training course was held at the beginning of the project (1997) and six database management courses were held in Pretoria (5) and Windhoek (1). A PRECIS Specimen Database User Guide has been produced and



Members of the SABONET Nyika Expedition, 2000. (Photo: C. Willis)

an updated PRECIS Manual is ready and due for printing as *SABONET Report* No. 41. National training courses were held as needed, and various country visits were made by the Regional Database Coordinator/SABONET IT Manager to troubleshoot, carry out national training, and install and upgrade software.

The SABONET project set out to establish a regional electronic information system on plant diversity. At the beginning of the project, it was agreed that the SANBI-developed PRECIS Specimen Database software would be installed and used by all the regional herbaria. A total of 5,030,710 specimens are now databased regionally on the PRECIS Specimen Database. Of the ten countries, only Namibia was able to database all its collections with 81,211 specimens databased, even though they had initially starting data basing their collection using a different database (BRAHMS-Botanical Research and Herbarium Management System) and had to start all over again using the PRECIS system. During the 2004/2005 period, the existing PRECIS databases have been migrated to the open-source MySQL platform to allow for greater flexibility, interoperability and stability, as well as easier interface with the newer Microsoft XP and Microsoft 2000 given that the earlier database structure was based on Microsoft 1997.

The computerisation process was only partially completed in most countries. The slow speed in computerisation was attributed to various technical problems such as computer crashes, loss of data due to poor backing up practices, technical difficulties in software and hardware handling, need for translation of labels into common language and down time due to continued revisions and updates of the software and operating systems. The PRECIS software was under continual development and needed various upgrades with support only available from SANBI. In addition, staff selected locally to manage databases were not IT experts, hence the Regional Database Coordinator often did not have a local equivalent and was overburdened with routine queries. This impacted negatively on the training investment, minimising benefits, compromised the ability to troubleshoot locally leading to many lost man-hours and frequent downtime.

Outputs of these databases have included publication of the Namibian Plant Checklist (*SABONET Report* No. 7), national checklists of grasses (e.g. Zimbabwe, Lesotho, Namibia, Botswana) and Trees of Botswana. In order to ensure that the project demonstrated utility of the database at a regional level, the Mid-term Review recommended that the project focus on one non-controversial plant group of both economic and conservation value, thus the Poaceae (grasses) were selected to generate a regional output. Thus, the latter phase of the project database activity shifted to the computerisation of Poaceae with a better success rate. All the institutions managed to database 100% of their Poaceae collections except Botswana, Lesotho, Mozambique and Swaziland.

The reality of what is required to run and maintain a database will only come home in a year or two after SABONET resources and support have gone. There is a threat of some databases at smaller institutions being orphaned—the database will become non-functional. Perhaps lessons should learnt from other initiatives such as IABIN and GBIF and close links developed with the African Plants Initiative (API) and African Plants Checklist (APC) as well other regional initiatives such as SEPASAL, MSB and PROTA, as a means of consolidating institutional information management systems. This will allow more targeted conservation and a stronger context to gain additional project funding, whether for research or practical conservation activities.

The progress in database activity by country is presented in Table 6.

Given the differing state of specimen data basing, the differing quality-control (especially taxonomic identifications and accuracy of geo-referencing), and the limitations in data sharing and intellectual property rights (IPR), the region is still constrained in developing relevant botanical outputs that are relevant to national conservation and development concerns. A great potential strength of SABONET, still not realised, is the linking together of the databased plant specimen collections. Some countries, e.g. South Africa, are large enough to have an “internal market” for botanical information. In others, e.g. Botswana and Swaziland, the “internal

Table 6. Progress in database activity by country.				
Country	Number of specimens in national collection	% computerised	No. of Poaceae specimens	% computerised
Angola	36,000	31	1,826	100
Botswana	31,000	35	2,794	74
Lesotho	39,690	79	3,860	95
Malawi	100,000	45	3,334	100
Mozambique	122,000	21	9,206	74
Namibia	81,211	100	11,414	100
South Africa	1,800,000	51	116,464	100
Swaziland	8,103	93	727	85
Zambia	25,000	67	2,281	100
Zimbabwe	500,000	21	18,629	100
Total	2,743,004	46	170,535	98

market” is too small, and the individual herbarium collections become less relevant to development.

Yet, there is a need for a sustainable exit strategy on databases. A good example is the MoU being developed between Namibia and South Africa on data access and management. This model could be extrapolated to other countries at regional and bilateral level. A lack of continued support from SANBI, the main home of PRECIS will strongly limit further development of databases within the countries and thus a commitment from SANBI to provide follow-up support will be essential. The greater challenge will be whether these databases can be: (a) updated nomenclaturally, (b) added to systematically and regularly, (c) kept running without extensive backstopping from SANBI or a similar institution, and/or whether the staff trained in database management can be retained. In some countries the databases are fully functional and usable, in the sense that they can be interrogated and useful comprehensive answers obtained (e.g. South Africa, Namibia). One cannot fully exploit this potential with a half-functional or half-completed database. The value of computerised data is clear, has been well demonstrated by the project and is of great value to wider users, especially conservationists.

The PRECIS database and specimen entry was not only one of the major activities of SABONET, but also the one upon which many of the secondary products were based. To have a project with a number of products predicated on a large more-or-less sophisticated database, with cleaned-up data, was rather ambitious. Perhaps, in hindsight, it was too ambitious given: (a) the limited previous exposure to databases, (b) the lack of IT skills in institutions, the limited backup and supervision available, (c) the continual changes in technology, (d) the lack of managerial support from higher up, and (e) in many cases the lack of vision or clear understanding as to the power and capacity such a database gives to an institution or to botany in a national framework.

EXPECTED OUTPUT 4: Production of regional human and infrastructural inventories.

The southern African taxonomic, herbarium and botanical gardens needs assessments were undertaken. Lists of experts by country, gender, institution, area of expertise, region and country were produced on plant taxonomic expertise (*SABONET Report* No. 10) and needs assessment for both herbaria and botanical gardens (*Report* No. 6 and *Report* No. 11 respectively). Later revisions and updates²¹ were produced as *SABONET Report Series* Nos. 1, 2, 8 and 12.

The needs assessments were effectively used in defining project interventions in capacity building and infrastructural development. In order to meet human needs, an elaborate capacity building programme was set up in line with output

1, while to strengthen the institutional capacity and meet the infrastructural needs identified for each of the ten countries; herbarium cabinets, computers and peripherals, microscopes and freezers were purchased. For fieldwork, a Toyota Hilux 4x4 diesel double cab vehicle, camping equipment, cameras and GPS units were also purchased through SABONET and as a result of this the project conducted 109 national field-collecting expeditions during the project phase.

The flexible approach used by the Steering Committee in allocating the resources yielded gainful institutional strengthening. Only essential facilities were provided and institutions had the option to choose what was most critical. As a result, project resources were used effectively such as purchasing herbarium cabinets where there was need vs. technical equipment. Computer hardware and software were purchased for the respective botanical gardens and in a few rare cases, botanical gardens equipment were purchased such as lawn mowers for Lesotho.

A major constraint within the botanic gardens community was the lack of the paid horticultural staff. As a result, these were hired on contract, paid by SABONET and placed in national botanical gardens on an interim basis, based on the needs identified (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe).²² In most of the institutions, the staff have been taken on board post SABONET. There is however still a need to build capacity for these cadre of staff as they were not eligible for higher training under the SABONET project. Further investments will need to be made to ensure that they are adequately trained and resourced.

The purpose of the needs assessment was to provide a basis for formulating a strategy for institutional strengthening. In order to assess effectiveness of strategic interventions made by the SABONET project to address the gaps identified, an evaluation of the previously marginalised taxonomic institutions as to whether they now have a stronger mandate, a stronger voice, a stronger sense of their role within the country may be useful. It seems that while so many institutions have actively participated in SABONET and yielded excellent project outputs, few have made efforts to enhance their vision, their horizons or maximize their capacity. The observation made during the visits across the region suggest that in general, botanical institutions have been revitalized but there is no clear indication on how this will be sustained. Indeed, in some countries, it is very likely that botanical institutions and botanists will fall back to ‘business as usual’ mode as was prior to the SABONET project. Yet in others there is a seed of cooperation and a confidence about relevance germinating. How can that be nurtured, and how can botanists across the region continue to be self-supporting as well as grow? This is a challenge that the leadership within the institutions that participated in the SABONET project will

²¹ The Southern African National Herbaria: Status Reports, 1996 (1997); Index herbariorum: southern African supplement (1997, 1999); and Action plan for southern African botanical gardens (2001) respectively.

²² However, this is still a major constraint in many of the botanical gardens as some have lost these staff due to death (2 in Zimbabwe and 2 in Malawi) and others have moved on (Malawi) while some have left for further training (Botswana).

need to address if the investment made as to be sustained and made to grow. It may not be norm for them to carry out institutional reviews, but this may be very helpful in charting the way forward. The worst-case scenario will be that the institutions leave it all up to a few self-selected individuals to try and attempt to keep going.

EXPECTED OUTPUT 5: Plant diversity evaluations and monitoring within the region.

The activities under this output were modified subsequent to the Mid-term Review. The initial focus was to strengthen habitat level botanical studies and GIS mapping. However, a similar project, SECOSUD,²³ funded by the Italian government through SADC and implemented through the SABONET participating institutions was initiated during the project phase with a key objective of GIS mapping of plant resources in the region. These activities were therefore cancelled by the Mid-term Review and a new focus on delivering specific outputs, thus development of national red lists, identification of Important Plant Areas and defining end-user needs in order to tailor taxonomic products opted for.

With additional support from the USAID/IUCN ROSA NETCAB support and using the SABONET framework, the SABONET project organised national red listing workshops using the IUCN red listing criteria in all the ten countries and developed draft national red lists. Through a series of consultations with the National Coordinators and stakeholders, the IUCN Species Survival Commission and the IUCN Red Listing Committee, the southern African plant Red Lists were produced in one volume edited by Janice Golding (2002). A total of 4,098 assessments were made, with the following categories allocated at the regional level.

• Extinct	32
• Extinct in the Wild	1
• Critically Endangered	138
• Endangered	230
• Vulnerable	1018
• Near Threatened	361
• Least Concern	1,130
• Data Deficient	1,188
• Endemics	1,962

Namibia had the highest number listed (1,152) and these are being refined in a new initiative post SABONET. The data on Red Data List Species for Angola however was not available at the time of publication. There was a much wider range of people involved in the Red Listing process, in many countries, than with other SABONET activities. Red Lists provide a good entry point into conservation, but only few institutions seem to be undertaking any revision of their Red Lists, clarifying species which are uncertain, checking actual status in the field, or getting them onto conservation agendas and into conservation agencies. The essential good points about

the Red Listing process under SABONET should be identified, articulated, disseminated and built upon. However, strategic linkages could be made on the basis of this initial output to various MEAs such as the programmes of work of the CBD and CITES. Namibia established a project on the cultivation of *Hoodia*, which was very well supported by the government, CITES agencies, local conservation agencies, NGOs and the private sector. This is an excellent approach and it would be worthwhile for other institutions to use a similar approach in developing the conservation projects for the red list species.

In the final stages of the project, as a means of demonstrating the utility of the project outputs in meeting broader national objectives and CBD obligations such as to the recently agreed Global Strategy for Plant Conservation Target 5,²⁴ three Important Plant Area (IPA) Workshops were held in Namibia, South Africa and Mozambique and a regional IPA workshop held in South Africa prior to national IPA workshops. Countries with incomplete checklists and databases were constrained in reviewing and identifying IPAs at a national level. In addition, a regional IPA assessment proposal has been submitted to the Darwin Initiative Fund (UK). However, in most countries, the linkages with the *in situ* conservation agencies were still weak and this has limited the uptake of findings and recommendations.

The concept of national end-user workshops was adopted within the log frame after the Mid-term Review. End-user workshops were therefore held in all the SABONET countries and a summary of the findings are presented in *SABONET Report No. 29*.²⁵ In Namibia, the end-user workshop was broadened to include the end-user needs for the biosystematics community (see Irish, J. 9 (Ed.) 2003). The workshops looked at the needs of both the internal and external consumers of taxonomic information and products, and made recommendations on how the herbaria can respond to these needs locally. Ultimately, the aim is to ensure that taxonomy been "mainstreamed" into conservation or the development process. In some countries, botanical institutions have become more relevant, but in other cases, there is a greater risk of marginalisation if institutions repeatedly fail to address the issue of relevance, end users, delivery of appropriate packaged products and provision of adequately skilled and experienced manpower.

EXPECTED OUTPUT 6: Development of a regional botanical gardens conservation strategy.

In order to build the capacity within the botanical gardens in the region, the Botanical Gardens Management Course (Pretoria, South Africa 2001) and Botanical Gardens Horticultural Course (Durban, South Africa, April 2002) were held. A total of 23 internships, linked to the threatened plant programmes of the respective gardens, were conducted for

²³ The SECOSUD project engaged staff to database and map plant resources of useful plant species in the region, starting with herbarium specimens. Staff were engaged and activities started including a GIS training course held in South Africa. However, this project has not been completed and there is no clear indication if there will be further activity.

²⁴ Target 5: Protection of 50% of the most important plant areas for plant diversity assured.

²⁵ Herbaria in SABONET countries: building botanical capacity and meeting end-user expectations.

selected botanical gardens in the region. For example, Namibia's National Botanic Garden and the Karoo Desert National Botanical Garden in South Africa exchanged staff with a focus on the propagation and conservation of succulent plants, accompanied by joint field trips while Botswana and the Natal National Botanical Garden, South Africa focused on horticultural skills.

The Threatened Plants Programmes (TPP) were developed in the latter phase of the project linked to the International Agenda for Botanic Gardens in Conservation and national red lists developed as part of the SABONET project in 22 gardens in the region. Diverse projects suited to the local needs were developed, e.g. *Hoodia* propagation as a component of a wider community based conservation initiative in Namibia; conservation education and awareness programme on the local taxa with cultivation of indigenous taxa in the Harold Porter National Botanical Garden in South Africa and the National Botanical Garden, Zimbabwe; and development of the 'Garden of Extinction' in Kirstenbosch National Botanical Garden, South Africa. The TPP has been an effective vehicle for the SABONET project to engage with a wider range of stakeholders at the national level. In Namibia, the *Hoodia* project has effectively built linkages to the policy makers and local communities, dealing with broad issues such as Access and Benefit Sharing, provision of alternative incomes, livelihoods and land use options. In addition, the project addressed biological issues as plant propagation protocols and threatened species management.

A regional Botanical Gardens Workshop was held in March 2001 with a follow up in November 2002 (*SABONET Report* No. 22). SABONET co-hosted (with Durban Botanic Gardens) the first African Botanic Gardens Congress in Durban, South Africa in November 2002 (*SABONET Report* No. 22); conducted a series of workshops on red listing, propagation and botanical gardens management at the Congress and published the Congress Proceedings. SABONET has been continually involved in the network by presenting articles and information to the electronic newsletter (African Botanic Gardens Network Bulletin) that has been developed and is maintained by Botanic Gardens Conservation International (BGCI).

These regional activities provided an opportunity for the botanical institutions to actually think and act regionally in practice. There is need to keep any flames of hope among project participants and institutions alive, keep them networking, building up and sharing better datasets, and gaining greater influence in conservation and economic development. A paradigm shift is needed for some institutions to effectively maximize on project outputs and resources.

Overall assessment

One can evaluate SABONET and its activities / impacts at four different levels: individual (or human), institutional, national, and regional.

Individual level (training courses, MSc, PhD, etc). SABONET did very well; a large number and wide range of people

were trained, and in a number of topics relevant to botany. People were happy with the training, although some wanted more taxonomically-orientated courses. But this enhanced capacity is mobile, it needs to be used to be effective, and to be retained at institutions to realise its potential. A core critical mass of taxonomists has been established in the region and taxonomic institutions resources have been increased. The staff are more equipped with the state of the art techniques and skills, have been exposed to others in the region, and their scope of understanding of national, regional and international perspectives has been greatly enhanced. In addition, many of the SABONET trained staff have been promoted to senior positions in Mozambique, Malawi, Zimbabwe, Botswana, Namibia and Zambia. However, for those that have gone back to former positions, the main constraint is a lack of enabling environment to allow them to effectively utilise their newly acquired skills. Whereas individual capacity has been built, individual support structures are weak. Linkages to professional bodies and other related agencies are minimal. A mentorship programme will be very useful in sustaining the capacity as many have limited peer support in their own local institutions. Linkages to grant making bodies and development of skills in proposal writing and fund raising will go a long way in empowering them.

Institutional level. The institutions have benefited largely through the provision of equipment, contract staff, trained staff, databases, vehicles and email. SABONET provided a lot, opened doors, and gave the institutions many of the missing "tools" to carry out their work. The major objective of building capacity of plant systematists and horticulturists (in part) has been achieved. But only some of the national institutions managed to use this added capacity to take themselves forward. In some cases staff were not retained; a functioning national database was only achieved in three countries; real engagement with users of botanical information (i.e. where compromise and two-way communication takes place) also only occurred in some countries, whilst in others the institutions' mandate precludes much involvement (e.g. university teaching herbaria). Overall, in South Africa, Namibia and Mozambique increased capacity seemed to lead to changes and greater relevance of the botanical institution, hence, hopefully, better resourcing in future.

However, there was limited support to overall institutional strengthening. The lack of an appropriate institutional framework has impacted negatively on the ability of some of the SABONET trained staff to sustain their motivation. Thus, the retention of SABONET trained staff is going to be a continuing challenge for some countries. For example, due to various internal and external factors, all the postgraduate trained staff in Zimbabwe have moved on. While the capacity is still available at the regional level, the SABONET objective at institutional level has not been adequately met, as there is still a need for a new capacity building investment as in the case in Zimbabwe. There has been loss of trained staff due to other reasons (e.g. death). At a regional level, there are gaps in meeting human capacity needs in biodiversity informatics and horticulture, in addition to plant taxonomy and conservation. However, SABONET has put in place appropriate linkages to pursue this in the long term.

Botanical gardens are still greatly understaffed in all the countries except South Africa. In Namibia, for example, there are no dedicated senior staff positions in the garden, vacant positions within other sections of the institute currently are frozen and some herbarium staff are expected to handle botanical garden responsibilities as well. Malawi does not have any trained horticultural staff, whereas key staff in Zimbabwe have left for further studies. A key challenge for the botanical gardens and some herbaria in the short and medium term is for then to demonstrate local relevance. The Threatened Plants Programme provides a good vehicle for this but there are many missed opportunities. Botanical gardens need to articulate more concisely local needs and work on relevant agendas such as medicinal plants, food and other economically important plants. This has been poorly done within the SABONET project and yet this is their local 'currency' given their contexts. A focus on indigenous food plants for example will link them to poverty eradication plans, local millennium development goals agenda and income generation. This approach will obviously link them more strategically to the government budgets.

In the long term, the lack of an enabling environment, visionary leadership and poor salaries are issues that seriously affect staff retention and these have to be addressed in the long-term if benefits are to accrue from the SABONET investment.

National level. The SABONET project has been very effective in bringing botanists together in-country and getting them to work as a team or develop partnerships. Less visible has been the SABONET impact on getting botany onto the conservation/development agenda. . Although SABONET may have provided the confidence and network support, this did not seem to actually result in many partnerships, cooperation, or greater involvement with government policy (e.g. CBD, GSPC) or conservation activities. Circumstances were probably different for each country and have to do with a multiplicity of factors such as institutional leadership and positioning, limited number of other persons or agencies available in-country, lack of champions, as well as institutional

mandates, some of which may have been beyond the control of the SABONET project. However, the outputs of the project though not effectively disseminated to the relevant government agencies, have been very instrumental in getting the countries to articulate various aspects of the CBD and CITES conventions, particularly the GTI and GSPC.

Indeed the SABONET project was designed to respond to the various elements of the CBD as is clearly stated in its broad objective. It is therefore imperative that the impact of the project is clearly recognized at the national and its contribution documented. The project has provided a useful model and has been a flagship GTI/GSPC project, has delivered excellent outputs and generated good value for money. It is a good case study that can be used in many contexts, such as networking, institutional collaboration, south-south partnerships capacity building and effective project management. However, it is important to stress the salient features that made the project particularly successful as highlighted in the lessons learnt section (section V).

International or regional level. SABONET has enabled the region to speak with one voice, loudly and confidently, in international forums and international project profile. The SABONET project has been very successful at this level. It is known and referred to in many global biodiversity forums and at international meetings, always as a success story of networking and bringing botany out. This was due to the promotional activities of the Regional Secretariat, the GEF, and good publicity. At a regional, SADC, level, this has perhaps not been so apparent, and although plants are perhaps closer to being on the table through SABONET, the individual countries do not always pull together. The project has been more successful at the international level than was expected, and as successful at the regional level as could reasonably be expected.

Sustainability and future activities

SABONET has been winding down for the last two years; the Secretariat input and energies also reflect this. South Africa

Table 7. Summary of assessment/scoring. ²⁶	
Review Finding	Score
Implementation approach	Highly Satisfactory
Country Ownership and drivenness	Medium Satisfactory
Stakeholder participation and involvement	Medium Satisfactory
Replication approach	Satisfactory
Cost effectiveness	Highly Satisfactory
Management arrangements	Highly Satisfactory
Financial Planning	Highly Satisfactory
Monitoring and evaluation	Highly Satisfactory
Management by UNDP country offices	Satisfactory
Coordination	Highly Satisfactory
Attainment of Objectives	Highly Satisfactory

²⁶ NS—Nat Satisfactory, MS—Medium Satisfactory, S—Satisfactory, HS—Highly Satisfactory

has moved beyond SABONET, moved onto other projects—not least the change to SANBI. Namibia is busy refining the SABONET outputs in targeted activities related to IPAs, end-user workshops and a revised plant Red List. The Millen-

nium Seed Bank project in Botswana, Namibia and South Africa has provided a link for SABONET follow up. However, in the most participating institutions, not much thought has been given to the next steps.

Databases

- How do we ensure continual institutional IT support?
- How do we ensure completion of pending specimen database activities?
- How do we build on, refine and maintain quality and utility of these databases?
- Can we define appropriate access and data sharing policies?
- What opportunities and options are there for linkages at the regional and international level to add value and increase robustness within the context of acceptable national, regional and international legal and policy frameworks?

Staff retention

- How do the national institutions ensure that the benefits from the SABONET investment give good returns and are not lost?

Staff mentoring post-SABONET

- Are there options to maintain high staff morale and motivation through a mentorship programme, especially for the recently trained staff that need to gain further experience? This could be a means of sustaining the SABONET spirit.

Network sustainability

- How do we maintain the established SABONET net-

work ensuring value and purpose, and not just maintain it for its own sake, and keep up the regional support network using expertise available in the region?

Publications

- Many publications (e.g. checklists, red lists, IPA and end-user workshop recommendations) have been produced by SABONET. How do we ensure their uptake and deliver similar high quality and relevant inputs into national processes?

Linkages

- What is the legacy of SABONET at the national level (e.g. linkages of botanical institutions to local communities, NGOs and consultants, in-country sectoral and development priorities, regional and international conventions)?

End-users

- How do herbaria and botanical gardens redefine themselves to become more locally relevant, engage end-users proactively and attract continued support?

What next

- What requirements are there for the development of new projects at national/bilateral/regional level to address the next steps, the gaps, and pending activities linked to conservation and sustainable use through a range of other donors?

The key issues to be addressed in relation to sustainability are summarised below. They provide a useful framework for elaboration at the proposed final SABONET Steering Committee Meeting as a basis for developing a concrete exit strategy for the SABONET project. Attempts to answer these

questions at regional, national and institutional level will enhance the ability to maximise benefits accrued from the SABONET investment and clarify a strategic way forward to ensure sustainability.

Recommendations

Follow up and reinforcement of initial benefits

Many successes have emerged from the SABONET project. There is a need to build on these, and to ensure that potential gaps are filled and pending activities completed.

The recommended follow-up actions to be undertaken include the following:

Databases

- Follow up to finalize the MoU on data sharing between Namibia's National Botanical Research Institute and SANBI. This could be used as a potential model for re-

gional/bilateral data sharing agreements if found appropriate.

- SANBI needs to clarify its role and what potential support might be available to participating institutions concerning the PRECIS Specimen Database development, future upgrades, troubleshooting and training. The SABONET National Coordinators should communicate their expectations clearly and agree modalities. It would be worthwhile to have some formal institutional agreement, which would be valid post-SABONET.
- Institutions that have not completed databasing their specimens should set SMART²⁷ targets on this activity and seek additional funding to complete it.

²⁷ Simple, Measurable, Achievable, Realistic, Time-bound.

Red Lists

- Review national Red Lists, update them and disseminate results to the relevant agencies, especially those working on *in situ* and *ex situ* conservation.

End-user workshops

- Follow up on recommendations of the end-user workshops at national level.
- Strengthen partnerships developed during the project.
- Explore ways and means to build linkages to relevant sectoral and national policies by working closely with

The **national institutions** need to mainstream SABONET gained resources and capacity. Recommended follow-on activities include the following:

- Establish linkages to potential funding organizations such as the Belgian GTI focal point for internships
- Explore new sources of funding and at local, regional and international levels and pursue them.
- Seek and clarify potential partnerships and linkages at the national and regional level that may be useful in soliciting funds, and use these to develop new projects or programmes based on national, bilateral and regional emerging priorities especially those which demonstrate relevance and provide strategic linkages and partnerships.
- Carry out strategic reviews to identify their strengths and relevance, e.g. to relevant thematic programmes and policy frameworks such as invasive species, useful plants and medicinal plants, which they could focus

the relevant agencies.

- Build linkages to the GTI and GSPC focal points and join forces to define and push forward a locally relevant national plant conservation and sustainable use agenda.

Proposals for future activities

Exit Strategy

The SABONET project has been a great success and it is vital that an exit strategy for the project is clarified. **This is the responsibility of the Steering Committee that has been the overall decision-making body of the project.**

on to demonstrate relevance, ensure sustainability and attract local and regional support.

- Strengthen linkages between botanical gardens and Botanic Gardens Conservation International and the African Botanic Gardens Network, whilst herbaria should strengthen linkages to BioNET International and AETFAT.

At regional level, the **Steering Committee** needs to:

- Outline the linkages and legacy of the SABONET project in relation to the API and APC, and to other related projects such as MSB, SEPASAL, GBIF, PROTA, and BGCI's African Small Grants Programme.
- Agree on pragmatic options for sustaining the SABONET network.
- Update the SABONET website and build links to national participating institution websites.²⁸

The SABONET legacy: specific recommendations

1. Each National Coordinator should produce a document on outlining how the project has benefited the institution, country and region, including linkages to CBD (especially GTI, GSPC, IAS, PA), UNCCD, CITES and other environment and sustainable development agreements, and circulate this to relevant stakeholders especially the CBD focal points.

2. Collaborating institutions should compile the outcomes of the SABONET project in the context of the GTI and GSPC, present these to the CBD focal points and request that these be included in the country national reports.

3. Since the GTI is due for an in-depth review of progress in implementation at COP 8 (March 2006, Brazil) the SABONET Regional Office should produce a paper summarizing the experience of SABONET in implementing the GTI as a component of this review for Southern Africa. This paper can be submitted by the GTI focal point of one of the participating institutions as an information document to SBSTTA 11. (Some of the SABONET national coordinators are GTI

focal points and could facilitate this, e.g. Botswana, Malawi and SANBI).

4. In order to ensure long-term access to the excellent documents produced by SABONET and share experiences in building capacity for taxonomy at national and regional level, the SABONET Regional Office should compile a CD-ROM/DVD of all electronic outputs (within acceptable copyright limits) and disseminate these. Copies should be made available to the CBD Secretariat and BioNET International libraries, amongst others. Consultations with the latter and the GTI officer may provide further guidance. Any freely accessible electronic documentation should also be availed to the Clearing House Mechanism of the CBD.

5. Hard copies of all available literature should be disseminated to all key libraries to ensure continued access long after SABONET closes.

6. A strategy for database updates and long-term maintenance should be formulated to avoid the in-country datasets being orphaned and abandoned, or worse still have the wheel re-invented through other funding mechanisms. Discussions with relevant stakeholders and links to the African Plants Initiative and GBIF may provide some alternative scenarios.

²⁸ The national participating institutions may take turns in maintaining the regional communication through a list server.

Lessons learned

Lessons Learned In Design

1. In designing projects such as SABONET that aim to deliver taxonomic products, it is important to define users of such products from the onset. In the case of SABONET, was the limited uptake of the project outputs by potential end-users because such agencies: (a) intrinsically do not use or wish to use botanical information, (b) wish to use the information but the procedures and opportunity costs are just too excessive, (c) find that the products they are given are inappropriate, or (d) are just not aware of what information and knowledge can be given, and botanical institutes are not making a wider audience aware of what they can provide? These are fundamental questions that perhaps should have been asked when SABONET was being developed, but certainly need to be asked in any future support to the botanical sector or in designing similar projects.

2. There is also a need to have a clearer vision of where botanical institutes fit within the broader conservation / education / economic development framework. The institutional positioning needs to be adequately clarified in order to develop a clear delivery chain of project outputs as well as address real needs in the local context.

3. In planning regional projects, it is important to take into account the national/institutional mandates and recognise differences in institutional capacities and capabilities, as well as dynamics. One option is to choose those institutions/countries with shared attributes, priorities and capabilities in order to address similar objectives. However, this is limiting and does not offer learning opportunities. The alternative is to deliberately select those with disparate attributes and capacities/capabilities but deliver different outputs. For example, while the focus for some institutions with similar capacities and priorities may be on developing checklists,

the output for others with different capabilities and needs may be to put in place the capacity to develop checklists. This allows felt needs to be met rather than perceived needs, which in the latter case often compromise the achievement of overall project outputs. If the log frame is innovatively and flexibly designed, different subsets of countries/institutions could be selected to meet different objectives or outputs based on their strengths, abilities and needs, and ultimately address a higher-level regional goal.

4. In any future project predicated on databases more attention needs to be given in project structure to: (a) basic and broadly-based IT training, (b) local IT support services (c) dedicated regional IT staff forming part of the regional office team to provide support on software problems and development; (e) a staggered set of database outputs (i.e. realistic and fundamental outputs vs. optional by-products); and (f) interoperable and distributed networks where feasible. Given that information requirements are often quite basic, the database that stores the information might also be quite basic and simple in structure. IT-capacitated institutions or countries could go to a higher level, but smaller herbaria or less-capacitated institutions could still consistently produce useful outputs.

Lessons Learned For Regionality

5. There is a lot of strength and momentum to be gained from regional projects. The SABONET momentum could be attributed to its focused yet complex regional mandate. A strong central vision and a diverse range of institutions with similar aspirations, even though with differing abilities and capacities, created different roles for each player. The strengths and weaknesses of each institution were internalised by the large network. The larger institutions felt needed and valued with a useful contribution to make, while



Participants of the EIA Course. (Photo: SANBI)

the smaller institutions felt they were beneficiaries and needed to stay on board. There was less institutional rivalry and competition as the institutions had different capacities and capabilities. However, large regional projects with different institutional mandates, capacities and priorities, working on an often marginalized thematic area such as taxonomy and plant conservation, are best implemented under the leadership of a champion who has a passion for the subject area.

6. Regionalism was beneficial but may need to build in adaptive management to ensure that true needs are met at a national level. Flexibility in implementation is important, as long as there remains a clear vision of where the project and activities are going. SABONET was product or output-focused, not process-focused. Instead of endless permutations of workshops and recommendations, its outputs were tangible. The workshops and seminars were used solely as a means to prioritising actions and achieving consensus and not an end in themselves. However, a strong focus on taxonomy isolated some stakeholders. There is therefore a need to have a strong project focus but use adaptive management to respond to changing needs.

Lessons Learned For Implementation

7. A project needs a strong regional Secretariat, based in a strong institution with able and qualified staff. But the Proj-

ect Management Unit has to be small and focused on delivery of outputs.

8. Good communication, both internally within the project and externally, is beneficial. Widespread dissemination of activities and results—multiple forums, multiple countries, multiple media, and multiple messages—is necessary.

9. During the implementation phase, a transparent Steering Committee with visionary strong leadership is an asset when supported with effective national working groups. When coupled with timely support from an implementing agency (in this case, NBI) whose personnel have a flair for detail, good technical understanding of the subject matter, good knowledge of local circumstances and constraints, the recipe for a successful project is in place. Therefore careful consideration with regard to the set up and role of National Working Groups has to be made.

10. The appointment of Heads of institutes or departments as National Coordinators guarantees institutional buy-in, with additional resources (human and infrastructural) potentially available. However, in the case of SABONET, some National Coordinators were overwhelmed and a dedicated project officer was needed to strengthen the ability of national institutions to manage projects.

Annex I: Terms of reference

Introduction

The Monitoring and Evaluation (M&E) policy at the project level in GEF/UNDP has four objectives:

- To monitor and evaluate results and impacts.
- To provide a basis for decision making on necessary amendments and improvements.
- To promote accountability for resource use.
- To document, provide feedback on, and disseminate lessons learned.

A mixture of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project—for example periodic monitoring of indicators—or as specific time-bound exercises such as mid-terms reviews, audit reports and final evaluations.

In accordance with GEF/UNDP M&E policies and procedures, all regular and medium-sized projects supported by the GEF should undergo a final evaluation upon completion of implementation. A final evaluation of a GEF-funded project (or previous phase) is required before a concept proposal for additional funding (or subsequent phases of the same project) can be considered for inclusion in a GEF work programme. However, a final evaluation is not an appraisal of the follow-up phase.

Final evaluations are intended to assess the relevance, performance and success of the project. It looks at early signs of potential impact and sustainability of results, including the

contribution to capacity development and the achievement of global environmental goals. It also identifies/documents lessons learned, and makes recommendations that might improve design and implementation of other GEF/UNDP projects.

The SABONET Project

The SABONET Project's main objective was to develop a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the ten countries of southern Africa (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe) competent to inventory, monitor, evaluate and conserve the botanical diversity of the region in the face of specific development challenges, and also to respond to the scientific and technical needs of the Convention on Biological Diversity (CBD). It was composed mainly of staff working in herbaria and botanical gardens in southern Africa. It aimed to reach the following set of goals and objectives—all part of the SABONET logistical framework:

Trained professional southern African plant taxonomists and plant diversity specialists

1.1 Staffing needs determined and appropriate staff placed in national herbaria.

1.2 Training needs of professional southern African plant taxonomists and plant diversity specialists identified.

1.3 Develop training courses as a participatory process and formalised within the region.

1.4 Regional training courses implemented.

1.5 National/sub-regional training courses implemented.

1.6 Short-term internships and professional exchange of personnel between institutions in order to develop technical skills and outputs.

1.7 Postgraduate and graduate (needs-driven) support for national herbarium staff at tertiary institutions.

1.8 Improve and develop managerial skills for institutional development.

Formal establishment of a collaborating Southern African Botanical Diversity Network

2.1 Project Steering Committee appointed and functioning.

2.2 Appointment of Project Coordinator, Assistant, Financial Officer, Regional Information Technology staff.

2.3 Identify role players for the National Working Groups.

2.4 Establish and support functional National Working Groups in each participating country.

2.5 Publication of a Network Newsletter.

2.6 Production of regional and/or national publications.

2.7 At least two regional/sub-regional collaborative field surveys and collecting expeditions undertaken in under-surveyed areas within the region.

Electronic information systems on the region's plant diversity developed and functioning, which document the region's botanical diversity

3.1 Purchasing of computer hardware and software in national herbaria.

3.2 Training of herbaria staff in information technology and the development and use of database(s) through regional and national training courses.

3.3 Computerisation of plant specimens stored in national herbaria.

3.4 Continual upgrading and improvement of the information technology functions in national herbaria to allow effective database output.

3.5 Communication between national herbaria through electronic means (electronic mail, Internet and other forms of communication).

3.6 Development and maintenance of a dedicated SABONET web site.

Production of regional human and infrastructural inventories

4.1 Preparation of human resource expertise inventories.

4.2 Preparation, distribution, collation and analysis of questionnaires to determine the available infrastructure and facilities amongst botanical institutions within the region.

Plant diversity evaluations and monitoring within the region

5.1 Database leads to maps of plant species distributions by region, country, province or quarter-degree grid.

5.2 Digitised vegetation maps of major vegetation types, biomes and ecosystems within the region.

5.3 Production of relational databases in GIS formats (forms bulk of SECOSUD-linked activity).

5.4 National field collecting expeditions (lead to national reports and improving people's skills in report writing, amongst others)—including bilateral expeditions.

5.5 Production of national flora checklists; herbarium specimen checklists.

5.6 Linkages developed between national herbaria and institutions with responsibility for plant conservation to promote multidisciplinary conservation e.g. end-user workshops.

5.7 Identification and refinement of botanical hot-spots, centres of diversity and plant endemism within the region.

5.8 Identification of priority taxa for inclusion in ex situ living collections within botanical gardens of the region (see Output 6) as part of the Threatened Plants Programme.

5.9 Identification of under-surveyed areas.

5.10 Evaluation of the conservation status of selected vegetation types/ecosystems/biomes per country and region.

Development of capacity in southern Africa to initiate a regional botanical gardens conservation strategy

6.1 Botanical gardens needs assessment conducted and the results published.

6.2 Regional workshops to discuss regional botanical gardens needs assessment report and networking of southern African botanical gardens.

6.3 Co-opt botanical garden representatives onto National Working Groups.

6.4 Appropriate staff placed in National Botanical Gardens.

6.5 Purchasing of computer hardware and software in national botanical gardens; linking of botanical gardens to e-mail.

6.6 Technical workshop to develop threatened plant conservation programmes in botanical gardens.

6.7 Implement threatened plant programmes in 20 southern African botanical gardens linked to the International Agenda for Botanic Gardens in Conservation.

6.8 Exchange staff skills and expertise between botanical gardens; exchanges linked to the threatened plant programmes in each specific garden.

6.9 Contribution to the African Botanic Garden Network (ABGN).

6.10 Develop and implement training courses as identified in the Regional Gardens Workshop.

6.11 Conduct 1-day National Workshops to discuss proposed threatened plant programmes with various stakeholders.

6.12 Regional monitoring team established to evaluate threatened plant programmes in southern African botanical gardens.

After a Mid-term Review in January/February 2001, it has been decided that the following logistical framework objectives should be cancelled: 5.2, 5.3, 5.10 and 6.11.

Objectives of the Evaluation

The GEF/UNDP Task Manager has initiated this evaluation. It is undertaken as part of the standard GEF/UNDP M&E process.

The evaluation should assess the success of the SABONET Project in terms of:

- ◆ Attainment of objectives:
 - How well did the SABONET Project achieve its set logistical framework objectives?
 - What has its impact been at National and Regional level, in terms of its main objective to develop a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the ten countries of southern Africa (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe) competent to inventory, monitor, evaluate and conserve the botanical diversity of the region in the face of specific development challenges, and also to respond to the scientific and technical needs of the Convention on Biological Diversity (CBD)?
 - What tangible outputs did the SABONET Project deliver; for example publications?
 - How well did the SABONET Project deliver and complete specific activities indicated in the logistical framework—for example, training courses/workshops to enhance botanical knowledge in participat-

ing institutions?

- ◆ Project achievements according to GEF Project Review Criteria:
 - Implementation approach
 - Country ownership and drivenness
 - Stakeholder participation and public involvement
 - Sustainability
 - Replication approach
 - Financial planning
 - Cost-effectiveness
 - Monitoring and evaluation.
- ◆ This evaluation must include ratings on the following criteria:
 - Achievement of objectives (the extent to which the Project's environmental and development objectives have been achieved).
 - The implementation approach (how well the implementation of the Project has been executed).
 - Stakeholder participation/public involvement (to what degree these parties were involved in the project).
 - Sustainability (how long and to what degree the achievements of the Project can be sustained into the future).
 - Monitoring and evaluation (how well the Project adhered to the M&E process, and how accurate previous assessments were).

Use the above statements as guidelines to present and analyse your main findings and any key lessons that could be learned from the SABONET Project. Include examples of best practices for future projects in the country and region. If there are any differences of opinion or disagreements between the findings of the evaluation team, any internal or external assessments, and/or the GEF recipient organisations, one or more annexes should be attached to the Terminal Evaluation Report that explain these differences. Note that the Terminal Evaluation is not an appraisal of any possible follow-up phases of the Project.

The main stakeholders of this evaluation are:

- ◆ The GEF family from the GEF Council, through the GEF Secretariat, the GEF Implementing Agency, staff from the GEF/UNDP headquarters and UNDP Country Office staff.
- ◆ Staff from the participating institutions in all of the participating countries, including:
 - Angola: LUAI
 - Botswana: GAB, UCBG, PSUB
 - Lesotho: ROML, SNPH, MASE
 - Malawi: MAL
 - Mozambique: LMA, LMU
 - Namibia: National Botanical Research Institute (NBRI) = WIND
 - South Africa: South African National Biodiversity Institute (SANBI) = PRE, NH, NBC
 - Swaziland: SDNH
 - Zambia: UZL
 - Zimbabwe: SRGH
- ◆ Any government agencies, local communities or private individuals that were (or are going to be) directly

or indirectly affected by the activities of the SABONET Project, including members of the National Working Groups.

The main purpose of this evaluation is to provide an accurate appraisal of the SABONET Project that will adequately inform the above stakeholders on the value and success (or not) of this Project.

Products expected from the evaluation

A comprehensive report including the following aspects are expected from the evaluating officers:

- ◆ An *Executive Summary* containing a brief description of the Project; the context and purpose of the evaluation, and the main conclusions, recommendations and lessons learned.
- ◆ An *Introduction* that states the purpose of the evaluation, the key issues addressed in the evaluations, the methodology of the evaluation, and the structure of the evaluation.
- ◆ A section on *The Project and its development context* that describes the Project's start and its duration, the problems that the Project seek to address, the immediate and development objectives of the project, the main stakeholders in the Project, and the results expected from the Project.
- ◆ A comprehensive discussion on *Findings and Conclusions* that should inform on the following issues:
 - Project formulation (implementation approach, country ownership and, stakeholder participation, replication approach, cost-effectiveness, UNDP comparative advantage, linkages between the Project and other interventions within the sector, indicators of success, and management arrangements).
 - Implementation (financial planning, monitoring and evaluations, management by the UNDP country offices, and coordination and operation issues).
 - Results (attainment of objectives, sustainability, and contribution to upgrading skills of the national staff).
- ◆ A section dealing with your *Recommendations* that should include corrective actions that might be taken for the design, implementation, monitoring and evaluation of the Project, the actions that are required to follow-up on or reinforce the initial benefits from the Project, and proposals for future directions underlining main objectives.
- ◆ Also include a summarising discussion on the *Lessons learned*, including best and worst practices in addressing issues relating to relevance, performance, and success.

- ◆ Lastly include the following information as *Annexes*:

- Terms of Reference
- Itinerary
- List of persons interviewed
- Summary of visits to participating institutions
- List of documents reviewed
- The questionnaire used and a summary of the results obtained from this questionnaire.

Methodology or Evaluation Approach

The evaluation team should include the following sources of information in the evaluation process:

- ◆ Documentation review (desk study):
 - The SABONET Regional Office will provide the evaluation team with all issues of the *SABONET Report Series* and the SABONET News that have been published, as well as with manuscripts that are close to publication at the time of the Terminal Evaluation. Copies of material used during training courses that have been held under the auspices of SABONET will also be provided. The evaluation team should review and assess the value, usefulness, and quality of these materials.
- ◆ Field and Office Visits and Interviews (may include group discussions/debates with staff):
 - The evaluation team will visit at least one participating institution in each of the ten participating countries (either singly or as a team), and hold interviews with the National Coordinators and/or other staff of the institution that had been affected or included in the SABONET Project.
- ◆ Questionnaires:
 - The evaluation team will compile a questionnaire that should be completed by at least the National Coordinator of each participating country. The results of the completed questionnaires should be included and discussed in the Terminal Evaluation Report.
- ◆ Any other techniques that the evaluation team deem necessary to obtain and analyse the required information.

Evaluation Team

The evaluation team will consist of two members:

- ◆ *Stella Simiyu* (SCBD/BGCI Program Officer, Global Strategy for Plant Conservation, c/o IUCN Eastern Africa Regional Office, Nairobi, Kenya)—Team Leader
- ◆ *Jonathan Timberlake* (Biodiversity Foundation for Africa, Bulawayo, Zimbabwe)



Annex 2: Itinerary

DATE (2005)	ACTIVITY
18th Feb.	Regional Office, South Africa; Christopher Willis, Gideon Smith
19th Feb	Travel to Namibia
21st Feb	Meetings, NBRI, Windhoek, Namibia
22nd Feb	Travel to Harare, Zimbabwe
23rd Feb	Meetings, National Herbarium & Botanic Garden, Harare, Zimbabwe
24th Feb	Travel to Zomba, Malawi
25th Feb	Meetings at NHBG, Zomba, Malawi
26th Feb	Travel to Gaborone, Botswana
28th Feb	University & National Herbarium, Gaborone, Botswana
28th Feb	Travel to Cape Town
1st March	Meetings, Kirstenbosch & Harold Porter National Botanical Gardens, South Africa
1st March	Travel to Pretoria
2nd March	Meeting with National Working Group, South Africa and Trevor Arnold
3rd March	Meeting, Stefan Siebert and preparation of draft report
4th March	Draft report presentation

Annex 3: List of persons interviewed

Maputo, Mozambique

Ms Helena **Mutemba**, Programme Assistant—Environment & Natural Resources, UNDP Maputo

Mr Miguel **Castanha**, Programme Officer—Environment, UNDP, Maputo

Dra Ana **Candido**, Botanical Garden, Department do Botanica, INIA, Maputo

Ms Annae **Senuoro**, Botanical Garden, Dept. of Botany, Universidade Eduardo Mondlane, Maputo

Dra Felicidade **Munguambe**, Head, Environmental Impacts Section, MICOA, Maputo

Ms Sara **Simango**, Centro do Experimentação Florestal, Direcção Nacional de Florestas e Fauna Bravia, Maputo

Mr Eduardo **Massingue**, Centro do Experimentação Florestal, Direcção Nacional de Florestas e Fauna Bravia, Maputo

Mr Hilario **Machava**, Jardim Tunduru, Maputo City Council, Maputo

Dra Samira **Izidine**, Head, Departament do Botanica, INIA, Maputo

Dr Calane **da Silva**, previous Head, Departament do Botanica, INIA, Maputo (now Deputy Director, INIA)

Dra Filomena **Barbosa**, Head, Dept of Botany, Universidade Eduardo Mondlane, Maputo

Windhoek, Namibia

Dr Gillian **Maggs-Kölling**, Head, National Botanical Research Institute, Windhoek

Ms Colleen **Mannheimer**, Botanist SEPASAL, and previously SABONET-employed curator, National Botanical Research

Institute, Windhoek

Ms Sonja **Loots**, In situ Conservation officer, National Botanical Research Institute, Windhoek

Dr John **Irish**, Project Coordinator Biodiversity Database Project, Windhoek

Ms Midori **Paxton**, UNDP, currently seconded as Project Coordinator, National Protected Areas Project (GEF), Ministry of Environment & Tourism, Windhoek

Mr Steve **Carr**, Project Coordinator, *Hoodia* Project, Botanic Gardens, National Botanical Research Institute, Windhoek

Dr Erika **Maass**, Senior Lecturer, Dept. Biology, University of Namibia, Windhoek

Ms Barbara **Curtis**, Project Manager, Tree Atlas Project, National Botanical Research Institute, Windhoek

Ms Silke **Rügheimer**, Researcher, Botanic Gardens, National Botanical Research Institute, Windhoek

Ms Esmeralda **Klaassen**, Database Manager, National Herbarium of Namibia, National Botanical Research Institute, Windhoek.

Harare, Zimbabwe

Ms Nozipo **Nobanda**, Head of Institute, National Herbarium and Botanic Garden, Harare

Mr Christopher **Chapano**, Data Capture Technician, National Herbarium and Botanic Garden, Harare

Mr Soul **Shava**, Environmental Education Officer/Head of Botanic Gardens, National Herbarium and Botanic Garden, Harare

Mr Claid **Mujaju**, Head of Seed Services and National Gene Bank, Agricultural Research, Harare

Dr Shadrack **Mlambo**, Director of Research, AREX, Harare
 Dr Shakkie **Kativu**, Lecturer, Department of Biological Sciences and Tropical Resources Masters Programme, University of Zimbabwe, Harare

Zomba, Malawi

Prof James **Seyani**, General Manager, National Herbarium & Botanic Gardens of Malawi, Zomba
 Dr Zacharia **Magombo**, a/Assistant Director and Head of Herbarium, National Herbarium & Botanic Gardens of Malawi, Zomba
 Mr Gerard **Meke**, Principal Forestry Research Officer, Forestry Research Institute of Malawi, Zomba
 Mr Mphamba **Kumwenda**, Head of Botanic Gardens, National Herbarium & Botanic Gardens of Malawi, Zomba
 Ms Elizabeth **Mwafongo**, Research Officer (doing MSc), National Herbarium & Botanic Gardens of Malawi, Zomba
 Mr Donald **Mpalika**, Data Entry Clerk/IT Specialist, National Herbarium & Botanic Gardens of Malawi, Zomba
 Ms Gladys **Msekandiana**, Assistant Scientific Officer (doing MSc), National Herbarium & Botanic Gardens of Malawi, Zomba
 Mr Maxwell **Mwamwanya**, Herbarium Technician, National Herbarium & Botanic Gardens of Malawi, Zomba
 Mr Austin **Chikumba**, Foreman, Botanic Gardens, National Herbarium & Botanic Gardens of Malawi, Zomba
 Mr Edwin **Kathumba**, Chief Technical Assistant, National Herbarium & Botanic Gardens of Malawi, Zomba
 Dr Augustine **Chikuni**, Programme Officer, Norwegian Embassy (formerly SABONET Coordinator for Malawi), Lilongwe (telephone interview)

Gaborone, Botswana

Ms Soso **Lebekwe-Mweendo**, Director, Botswana National Museum, Gaborone
 Dr Bruce **Hargreaves**, Head of Natural History, Botswana National Museum, Gaborone
 Ms Monika **Kabelo**, Herbarium Assistant, Botswana National Museum, Gaborone
 Ms Queen **Turner**, Head of National Herbarium, Botswana National Museum, Gaborone
 Ms Dolina **Malepa**, Head of Environmental Research & Monitoring Division, Ministry of Environment, Wildlife & Tourism, Gaborone
 Mr Mbaki **Muzila**, i/c of Herbarium, Department of Biological Sciences, University of Botswana, Gaborone
 Dr Moffat **Setshogo**, Senior Lecturer & alternate SABONET National Coordinator, Department of Biological Sciences, University of Botswana, Gaborone
 Mr Nonfo **Mosesane**, Head of Botanic Garden & SABONET National Coordinator, Botswana National Museum, Gaborone

Pretoria, South Africa

Prof Gideon **Smith**, Director of Research & Scientific Services, SANBI, Pretoria
 Mr Christopher **Willis**, Director of Botanic Gardens (former Regional Coordinator of SABONET; 1996 to 2000), SANBI, Pretoria
 Ms Yolande **Steenkamp**, SABONET Regional Coordinator (2003 to 2005), SANBI, Pretoria
 Mr Trevor **Arnold**, Database Manager/PRECIS development, SANBI, Pretoria
 Dr Ashley **Nicholas**, University of Durban-Westville, Durban
 Mr Terry **Trinder-Smith**, Bolus Herbarium, University of Cape Town
 Mr Robert **Scott-Shaw**, Kwa-Zulu Natal Nature Conservation
 Prof Snowy **Baijnath (retired)**, University of Durban-Westville, Durban
 Prof Brian **Huntley**, Chief Executive Officer, SANBI, Cape Town
 Dr Stefan **Siebert**, Lecturer in Botany (previous Regional Coordinator of SABONET; 2000 to 2003), University of Zululand, Richards Bay
 Prof Ben-Erik **Van Wyk**, Department of Botany, University of Johannesburg, Johannesburg
 Ms Ronell **Klopper**, African Plant Checklist project, SANBI, Pretoria
 Dr Marinda **Koekemoer**, Curator of National Herbarium, SANBI, Pretoria
 Dr Patrick **Phiri**, Lecturer and SABONET National Coordinator, University of Zambia, Lusaka, Zambia
 Dr Esperança **Costa**, Lecturer and SABONET National Coordinator, Augustino Neto University, Luanda, Angola
 Dr Koos **Roux**, Compton Herbarium, SANBI, Cape Town

Cape Town, South Africa

Mr Augustine **Morkel**, Estate Manager, Kirstenbosch National Botanical Garden, SANBI, Cape Town
 Mr Werner **Voigt**, Horticulturist, Kirstenbosch National Botanical Garden, SANBI, Cape Town
 Mr Philip **Le Roux**, Curator, Kirstenbosch National Botanical Garden, SANBI, Cape Town
 Dr Ted **Oliver**, former Curator of Compton Herbarium (retired), SANBI, Cape Town
 Mr Ian **Oliver**, Curator of Karoo Desert National Botanical Garden, SANBI, Worcester
 Mr Anthony **Hitchcock**, Nursery Manager/Threatened Plants Programme, Kirstenbosch National Botanical Garden, SANBI, Cape Town
 Ms Antonia **Xaba**, Curator, Harold Porter National Botanical Garden, SANBI, Betty's Bay
 Ms Berenice **Carolus**, Horticulturist, Harold Porter National Botanical Garden, SANBI, Betty's Bay
 Ms Jane **Forrester**, Horticulturist/Interpretation, Harold Porter National Botanical Garden, SANBI, Betty's Bay

Annex 4: Summary of findings against activities

ACTIVITIES	REGIONAL	SCORE
1. Trained professional southern African plant taxonomists and plant diversity specialists	16 BSc (Honours) registered, 14 completed, 22 registered for MSc, 19 completed, 3 will complete in 2005. 1 student (Angola) discontinued at UCT due to language problems and the other student from Botswana left the University of the Witwatersrand due to personal reasons. 11 students (Botswana, Lesotho, Malawi, South Africa, Swaziland and Zambia) completed a combination of BSc and MSc degrees.	HS
1.1 Staffing needs determined and appropriate staff placed in national herbaria	Done. Needs determined and appropriate staffing put in place. Staff trained by SABONET absorbed by institutions, promoted and moved to key positions (head of herbarium in Botswana, head of botany in Mozambique, head of National Gene Bank in Zimbabwe) though some have left due to various reasons (South Africa, Namibia, Zimbabwe and Mozambique).	HS
1.2 Training needs of professional southern African plant taxonomists and plant diversity specialists identified	Done. Herbarium and botanical gardens needs assessments done and published as SABONET Reports No. 6 and 11 respectively.	HS
1.3 Develop training courses as a participatory process and formalised within the region	Various training courses developed in-house based on priorities identified by the Steering Committee to meet needs identified at institutional level. For each training course, proposals were submitted by the national Coordinators and selected by consensus. All courses were held within the region using local expertise and examples. A total of 26 courses were held with a total of 186 participants at 13 different institutions/locations.	HS
1.4 Regional training courses implemented	A total of 22 courses ran with a focus on Herbarium Management (3), Botanical Gardens Management (2), Database Management (7), Plant identification of various taxonomic groups (5), Environmental Impact Assessment (1), Threatened Plant Conservation (1), Botanical Drawing (1) and Field Course (Miombo—1). Location—(South Africa -16, other countries 6)	HS
1.5 National/sub regional training courses implemented	Four courses were held at a national level (Namibia—Grass identification and PRECIS Computer course, Zambia—Herbarium Management and EIA and South Africa—Cycad Conservation Course). Various Red listing courses were held at national level to develop red lists and supported in part by IUCN ROSA through NETCAB funding. 186 participants, of which 37% were female. Gender balance constrained in part by prevailing institutional structure and establishment. Gender balance varied male: female ratio e.g. Namibia 3: 10 vs. Malawi 17:2. Also balance between institutions involved varied e.g. Angola—19 courses, 6 people, one institute of Botswana 30 courses, 7 institutions.	S
1.6 Short-term internships and professional exchange of personnel between institutions (up to a maximum of three months) in order to develop technical skills and outputs	75 internships within the region between herbaria and botanical gardens were completed, with participation by all countries. Technical and research skills shared and developed. Angola (4), Botswana (12), Lesotho (3), Malawi (6), Mozambique (8), Namibia (9), South Africa (21), Swaziland (2), Zambia (4) and Zimbabwe (6). The internships involved expert visits to other institutions to provide technical support/training based on specific requests such as training in horticulture and nomenclature (South Africa) as well as in-country internships between different institutions (South Africa).	HS
1.7 Postgraduate and graduate (needs-driven) support for 24 national herbarium staff at tertiary institutions	Postgraduate training undertaken based on institutional needs. 22 MSc degrees sponsored by the project, 19 completed, 3 to be completed by the end of 2005. Three recipients excelled in their MSc degrees, two have proceeded to PhD registration.	HS
1.8 Improve and develop managerial skills for institutional development	Limited focus on managerial training except in Zimbabwe and regional training course for herbarium and botanical gardens managers that focused on management skills.	MS

HS – Highly Satisfactory, S – Satisfactory, MS – Medium Satisfactory, NS – Not Satisfactory

Summary of findings against activities (continued)

ACTIVITIES	REGIONAL	SCORE
2. Formal establishment of a collaborating Southern African Botanical Diversity Network		
2.1 Project Steering Committee appointed and functioning	Project Steering Committee in place. Meetings held quarterly bringing together the National Coordinators. The Coordinators presented their proposals for activities, equipment, training etc. and these were either approved or rejected by consensus. A strong dedicated, consistent chairmanship (Prof. Brian Huntley—CEO, SANBI) and Secretariat through the project period ensured success.	HS
2.2 Appointment of Project Coordinator, Assistant, Financial Officer, Regional Information Technology staff	Project Coordinator appointed, three during the project time; Administrative Assistant, Financial Officer and Regional IT staff appointed. Regional IT staff and Project Coordinator retained as SANBI staff.	HS
2.3 Identify role players for the National Working Groups	National Working Group appointed at national level. However, roles not clearly defined. Working group only used effectively in Namibia to review project progress at national level and provide technical support; in other cases e.g. Zambia—working group used to passively receive reports and in other cases, working group hardly met (Zimbabwe and Malawi).	MS and NS
2.4 Establish and support functional National Working Groups in each participating country	Working groups only functional in some countries e.g. Namibia. Adequate support not provided to enable National Coordinators to sustain this activity. Some were overloaded with similar committees (Zimbabwe) and others overwhelmed by institutional responsibilities on which SABONET was added (Malawi).	MS and NS
2.5 Publication of a Network newsletter	Done. Regular newsletters produced. Wide circulation (905 no. of mailing list, wide readership and used as a marketing and communications tool for SABONET locally, regionally and internationally. A useful tool for networking and was the main medium of communication between the various SABONET stakeholders.	HS
2.6 Production of regional and/or national publications	41 publications (34 published to date, 8 not yet at the printers) prepared by SABONET. 19 of these were national publications mainly national checklists and dedicated family treatments such as for grasses (e.g. Botswana, Namibia, Zimbabwe, Lesotho, Angola, Swaziland), pteridophytes (Swaziland) and bryophytes (Zimbabwe). Publication of Malawi Checklist pending and this likely to be published as part of the SABONET Report Series but with alternate funding.	S
2.7 At least two regional/sub-regional collaborative field surveys and collecting expeditions undertaken in under-surveyed areas within the region. Reduced to two by recommendation of the Midterm Review.	Two regional collaborative surveys undertaken; to (a) the Nyika National Parks of Malawi and Zambia (SABONET Report Series No. 31) and (b) southern Mozambique.	HS
3. Electronic information systems on the region's plant diversity developed and functioning which document the region's botanical diversity		
3.1 Purchasing of computer hardware and software in national herbaria	Computer hardware and software purchased for all herbaria, and computer networks in place. Due to continual need for upgrading, newer computers purchased in the latter phase of the project to cope with newer software requirements for higher operating speed and higher RAM. With increase in numbers of accessions and changes in three upgrades in Microsoft Access during the project phase, a new platform for the PRECIS database, open source MySQL has been installed for all the countries. Recently, three computers bought by the SABONET project were stolen but there are plans to replace them by the local government budget. Fortunately, all the data had been backed up.	HS

Summary of findings against activities (continued)

ACTIVITIES	REGIONAL	SCORE
3.2 Training of herbaria staff in information technology and the development and use of database(s) through regional and national training courses	One regional computer training course held at the beginning of the project (1997) and six database management courses held in Pretoria (5) and Windhoek (1). A PRECIS Specimen Database user guide produced as a number in the SABONET Report Series and updated PRECIS Manual ready and due for printing as SABONET Report No. 41. National training courses held as needed and various country visits made by the Regional Database Coordinator to trouble shoot, carry out national training and install/upgrade software. However, in some instances, training impact compromised by calibre of staff leading to heavy demand on the time of the Regional Database Coordinator to deal with hardware trouble shooting, that could have been easily handled locally if the right calibre of staff were in place.	HS
3.3 Computerisation of plant specimens stored in national herbaria	Computerisation complete in some countries, and not in others. Focus shifted to the computerisation of Poaceae. Main setbacks: staff selected to manage databases not IT competent, mainly focus on data entry clerks, regional database Coordinator did not in all circumstances have a local equivalent, affecting impact of training; this leading to common oversights such as lack of frequent back ups and ensuring that most current anti-virus packages are installed. Staff turnover also a challenge in some institutions; need for a sustainable exit strategy; an MoU is being developed between Namibia and South Africa on data access and management but this not the case with the other participating countries. Lack of continued support from SANBI, the main home of PRECIS will strongly constrain further development of databases within the countries. A commitment from SANBI to provide follow up support CRITICAL. See Appendix	MS
3.4 Continual upgrading and improvement of the information technology functions in national herbaria to allow effective database output	Done. Database migrated from MS Access to MySQL to allow greater flexibility in the use of the database and interoperability especially to allow interface with newer Microsoft XP and Microsoft 2000 given that earlier database was based on Microsoft 1997.	
3.5 Communication between national herbaria through electronic means (electronic mail, Internet and other forms of communication)	Done. All herbaria with internet facilities, and costs met by SANBI. However, sustainability in some countries limited post SABONET due to limited institutional operating budgets.	HS
3.6 Development and maintenance of a dedicated SABONET web site	Done. Website created. Website a useful tool for communication and publicity. Plans in place for SABONET website to be sustained.	HS
4. Production of regional human and infrastructural inventories		
4.1 Preparation of human resource expertise inventories	Done. Presented in SABONET Report No. 10: Plant taxonomic expertise: An Inventory of Southern Africa and herbarium needs assessment and botanical garden needs assessment outputs (SABONET Report No. 6 and 11 respectively).	HS
4.2 Preparation, distribution, collation and analysis of questionnaires to determine the available infrastructure and facilities amongst botanical institutions within the region	Done. SABONET Report No. 6 and 11, the needs assessment for herbaria and botanical gardens respectively. Related outputs include the Southern Africa national Herbaria: Status Report 1996, Index Herbariorum: southern African supplement 1997, 1999 and Action Plan for southern African botanical gardens (SABONET Report Nos, 1, 2, 8 and 12 respectively).	HS
5. Plant diversity evaluations and monitoring within the region		
5.1 Database leads to maps of plant species distributions by region, country, province or 1/4 degree grid	Selectively done by some countries but not prioritised at regional level by the SABONET project especially after the Mid-term Review. Herbaria in some countries focus primarily on taxonomy (e.g. Zimbabwe) and have no capacity to carry out mapping/GIS activities while others e.g. Namibia historically have a vegetation studies section and could incorporate this activity linked to its other programmes e.g. Tree Atlas of Namibia project.	MS

Summary of findings against activities (continued)

ACTIVITIES	REGIONAL	SCORE
5.2 Digitised vegetation maps of major vegetation types, biomes and ecosystems within the region. CANCELLED by Mid-term Review.	CANCELLED by Mid-term Review	
5.3 Production of relational databases in GIS formats. CANCELLED by Mid-term Review (to SECOSUD)	CANCELLED by Mid-term Review.	
5.4 National field collecting expeditions (lead to national reports and improving people's skills in report writing, amongst others)—including bilateral expeditions	National field collection trips prioritised in some countries e.g. Namibia, especially to undercollected areas and in collaboration with other internal programmes and projects as well as those related to the botanical gardens Threatened Plants Programme. However, in some countries, e.g. Zimbabwe, minimal field collecting activity took place.	MS
5.5 Production of national flora checklists; herbarium specimen checklists	Done. e.g. Namibia, Zimbabwe, Zambia and Botswana with completed checklists published/in process of publication as SABONET Report Series. Other family checklists published e.g. grasses and trees.	S
5.6 Linkages developed between national herbaria and institutions with responsibility for plant conservation to promote multi-disciplinary conservation i.e. end-user workshops	Concept of end-user national workshops adopted within the logframe after the Mid-term Review. Purpose and potential outputs not very well understood by the various national Coordinators. End-user workshops held in all the SABONET countries except Malawi. In the nine countries (Swaziland, Zimbabwe and Zambia) did not really have interactive sessions with the end-user community to identify their needs; used these as forum to inform the end-users about what they can provide. In Namibia, the workshop was broadened to include the end-user needs for the biosystematic community. The workshops looked at the needs of both the internal and external consumers missing the opportunity to clearly define the clients appropriately and have them define their needs. Ultimately, the final conclusions comprised internal/structural needs of the taxonomic community rather than the specific needs/products and processes required by the institutions responsible for plant conservation.	NS
5.7 Identification and refinement of botanical hot-spots, centres of diversity and plant endemism within the region	IPA workshops used as main tool to achieve this objective. Three IPA workshops held in Namibia, South Africa and Mozambique. A regional IPA workshop held in South Africa prior to national IPA workshops. For countries with incomplete checklists and pending database completion constrained in reviewing and identifying IPAs at a national level. National efforts in place to follow up IPA workshops in Namibia. Plans in place also to undertake a regional IPA assessment through a proposal submitted to the Darwin Initiative Fund (UK). Linkages with <i>in situ</i> conservation agencies still weak and uptake of findings in IPA workshops. This exacerbated by perception of the role of herbaria in the different countries by the national Coordinators.	MS
5.8 Identification of priority taxa for inclusion in <i>ex situ</i> living collections within botanical gardens of the region (see Output 6) as part of the Threatened Plants Programme	Done. Priority taxa based on national needs identified and included in the Threatened Plants Programme. The TPP has been an effective vehicle in linking the SABONET project with a wider range of stakeholders at the national level. In Namibia, the Hoodia project has effectively built linkages to the policy makers and local communities, dealing with issues as broad as Access and Benefit Sharing, provision of alternative incomes, livelihoods and land use forms. In addition, the project addresses biological issues as plant propagation protocols and threatened species management.	S
5.9 Identification of under-surveyed areas (e.g. for Poaceae)	Done in some countries e.g. Namibia and Botswana, while others e.g. Zimbabwe did not prioritise this activity citing large backlogs of non-catalogued specimens that were priority.	

Summary of findings against activities (continued)

ACTIVITIES	REGIONAL	SCORE
5.10 Evaluation of the conservation status of selected vegetation types/ecosystems/ biomes per country and region. CANCELLED by Midterm Review	CANCELLED by the Mid-Term Review.	
6. Development of a regional botanical gardens conservation strategy		
6.1 Botanical gardens needs assessment conducted and the results published	Botanical gardens needs assessment completed and findings compiled as SABONET Report Series No. 11 and action plan produced as a follow up (SABONET Report No. 12).	HS
6.2 Two regional workshops to discuss (a) regional botanical gardens needs assessment report and networking of southern African botanical gardens, and (b) progress made in the implementation of threatened plant programmes	Part of this aspect done back to back with the inaugural African Botanic Gardens Congress (November 2002).	S
6.3 Co-opt botanical garden representatives onto National Working Groups	Botanical gardens representatives co-opted onto the national working groups in Namibia, Malawi, South Africa.	MS
6.4 Appropriate staff placed in National Botanical Gardens	Horticultural staff paid by SABONET placed in national botanical gardens where the needs were identified. Some of these trained through short internships and short courses. However, this is still a major constraint in many of the botanical gardens, as some have lost these staff due to death (2 in Zimbabwe and 1 in Malawi) and others have moved on after the project having received training (Malawi), while some have left for further training (Botswana).	S
6.5 Purchasing of computer hardware and software in national botanical gardens; linking of botanical gardens to e-mail	Depending on institutional structure, hardware and software have been put in place. In some instances such as Zimbabwe and Namibia, the staff offices are physically situated in the same building as herbaria so no separate hardware and software acquisition arrangements made.	S
6.6 Technical workshop to develop threatened plant conservation programmes in botanical gardens	A review committee was put in place to review the proposals submitted for threatened plants programmes within the different botanical gardens.	S
6.7 Implement threatened plant programmes in 20 southern African botanical gardens linked to the International Agenda for Botanic Gardens In Conservation	Threatened plants programmes developed that were linked to the International Agenda for Botanic Gardens in Conservation and national red lists developed as part of the SABONET project. Diverse projects suited to the local needs developed e.g. Hoodia propagation as a component of a wider community based conservation initiative in Namibia. Conservation education and awareness on the local taxa with cultivation of indigenous taxa with horticultural potential in Harold Porter National Botanical Garden in South Africa, and development of the 'Garden of extinction' in Kirstenbosch National Botanical Garden, South Africa.	S
6.8 Exchange staff skills and expertise between botanical gardens; exchanges linked to the threatened plant programmes in each specific garden	Done for selected botanic gardens, e.g. Namibia and Karoo Desert National Botanical Garden in South Africa with a focus on the propagation and conservation of succulent plants, accompanied by joint field trips; internships between Botswana and Natal National Botanical Garden, South Africa and Malawi and Pretoria National Botanical Garden.	HS

Summary of findings against activities (continued)

ACTIVITIES	REGIONAL	SCORE
6.9 Contribution to the African Botanic Garden Network (ABGN)	SABONET co-hosted the inaugural African Botanic Gardens Congress, published the proceedings of the Congress and conducted a series of workshops on red listing, propagation and botanical gardens management prior to the Congress. SABONET has been continually involved in the network by presenting articles and information to the electronic newsletter that has been developed and is maintained by BGCI.	S
6.10 Develop and implement training courses as identified in the Regional Gardens Workshop	Botanical Gardens Management Course (Pretoria, South Africa, 2001) and Botanical Gardens Horticultural Course (Durban, South Africa, April 2002)	S
6.11 Conduct 1-day National Workshops to discuss proposed threatened plant programmes with various stakeholders	An internal review process used to review the various proposals on a case-by-case basis by each botanical garden and local efforts to engage their stakeholders but the formal activity was cancelled.	MS
6.12 Regional monitoring team established to evaluate threatened plant programmes in southern African botanical gardens	Cancelled.	

Annex 5: List of documents reviewed

GOLDING J. Ed. 2002. Southern African Plant Red Data Lists. Southern African Botanical Diversity Network Report No. 14. Pretoria. 238 pp.

HUNTLEY, B. 1996. The Long walk to GEF. 1st Meeting of the SABONET Committee. Pretoria, 3 pp.

IRISH J. Ed. 2003. Namibia's Biosystematic Needs: Proceedings of the Namibian Biosystematics End-user Workshop, Windhoek, 24-25 September 2002. Biosystematics Working Group, Windhoek. 57 pp.

SABONET, 1998. Inventory, evaluation and monitoring of botanical diversity in southern Africa: A regional capacity and institution building network (SABONET). GEF/UNDP Project Document. Southern African Botanical Diversity Network Report No. 4. Pretoria. 73 pp.

SABONET 2005. SABONET PROJECT: 2004 FINANCIALS. Southern African Botanical Diversity Network Report Internal Report. Pretoria.

SABONET 2005. SABONET TERMINAL REVIEW 17th February to 4th March 2005. Southern African Botanical Diversity Network Internal Report. Pretoria. 246 pp.

SABONET 2005. Internal Review of the SABONET Project. Southern African Botanical Diversity Network Internal report.

SANBI 2004. Newsletter of SANBI's Plant Conservation Projects. The South African National Biodiversity Institute,

Issue 1, September 2004.

SIEBERT, S. J. & SMITH G.F. 2004. SABONET's support, activities and achievements in South Africa. South African Journal of Science 99: 303-304.

SIEBERT S.J. & SMITH G.F. 2004. Lessons learned from the SABONET project while building capacity to document the botanical diversity of Southern Africa. Taxon 53 (1): 119-126.

SMITH G.F. 2004. The African Plants Initiative: a big step for continental taxonomy. Taxon 53 (4): 1023-1025.

SMITH T.J., SMITH G.F. & STEENKAMP Y. 2004. Herbaria in SABONET countries: building botanical capacity and meeting end-user expectations. Southern African Botanical Diversity Network Report No. 29. SABONET. Pretoria. 39 pp.

TIMBERLAKE, J.T. & PATON A. 2001. Mid Term Review of the Southern African Botanical Diversity Network, GEF/UNDP Project Number RAF/97/G33. 42 pp.

WILLIS, C.K. & SMITH G.F. 2004. The Global Strategy for Plant Conservation: implications for succulent plant conservation in Southern Africa. Aloe 41: 6-15.

ZULU, J.N., CHUBA D.K. & PHIRI P.S.M. 2003. Impact of SABONET programmes in Zambia. Proceedings of the SABONET End-user Workshop held in the Senate Chamber at the University of Zambia Great East Campus, Lusaka, Zambia, 1st February 2003. 51 pp.

Annex 6a: Herbarium questionnaire

Training

1. How many people have been trained? Break down by type of training.
2. Training courses—how many have attended? How many in-country, how many outside?
3. Where are the people that were trained now?

Institutional

4. What equipment and facilities were obtained through SABONET? How have they been used?
5. How has your institution's capacity been increased by SABONET? How have you demonstrated this?
6. What collaboration have you had, at working level, with other botanists in-country?
7. What collaboration or exchanges have you had, at working level, with other botanical institutions through SABONET? How useful have these been?
8. What will happen to the herbarium, now that SABONET is finishing?
9. National field trips—how many did you carry out? To where? What has been their impact?
10. Staff turnover and retention—what has this been in your institution? What have been the reasons? What is the effect?

Project management

11. Support from Project Management staff at NBI—how frequent has this support or visits been? Has the PMU been efficient? What sorts of problems have there been, and have they been resolved efficiently?
12. What about support over the last two years with the project running down and a high staff turnover?
13. Have you felt that your requirements have been adequately addressed? And if not, in what way?
14. Has the institutional base of SABONET in South Africa, specifically in such a strong institution as NBI, been a problem? If so, why? And how could this have been overcome?

Database and lists

15. PRECIS database. How many specimens from your institution have been entered? What percentage of the herbarium? What prioritisation was given; which groups?

16. How has the data from PRECIS database been used?
17. What about technical problems? Have these been readily overcome?
18. How have you used computerisation? What have been the benefits?
19. How will you maintain the database and add in? Is it worth it?
20. Plant mapping—what has been done so far? What plans?

Conservation

21. Red Data Lists—how valuable has this been? How has it been used, and by whom?
22. What about differences in the approach between this and e.g. PRECIS and training?
23. What plans do you have to update or revise the RDLs?
24. Have you looked at specific RDL taxa in more detail in light of these findings?

Publications

25. SABONET Newsletter—have these been useful? In what way? What about quality—has it improved, or gone down?
26. SABONET publications—which have been the most useful? Why? Which have not been useful?
27. What would be the most useful future publications?

Users

28. Users workshop—who were the users represented? How many participated?
29. What were the main conclusions or findings from your national workshop?
30. National Steering Committee—who is on it? What representation is there, what sort of people or angles? What user bodies were involved? What has been their input? How useful have these been?
31. In what way has the National Steering Committee changed project activities in-country?
32. What products have been produced for local users? What has been their reaction to these products?
33. Participation in international field trips—what was your institution's role? What did your institute get out of it?

Botanical gardens

Future

34. Botanical Gardens—how many have been supported? What assistance did they get?

35. What effect has this support had on the status of the gardens? Are they now more used?

36. Now that SABONET is ending, what sources of support are there for botanical gardens?

37. What are your thoughts on a possible SABONET 2? Is it viable to have a regional or multi-country project? Any bilateral initiatives in the pipeline?

38. Momentum and resources are presumably going to be less now. Is that a problem? If so, why?

Annex 6b. Questionnaire sent to all National Coordinators

COUNTRY	
INSTITUTION	
National Coordinator	
SABONET Staff (Please indicate name, qualification and role)	

1. BUDGET

1.1 Were the funds sufficient for all the planned activities?
Yes/No
(Specify constraints and how this affected achievement of project objectives.)

2. TRAINING AND CAPACITY BUILDING

2.1 Staff needs and status

	No. of staff at beginning of project	No. of staff needs (from needs assessment)	No. of staff at end of Project	No. of staff trained by SABONET
Taxonomists				
Horticulturists				
Technical staff—Herbarium				
Technical staff—data entry				
Others (specify)				

2.2. What training have the staff received? Please indicate courses/training/internships, duration, location and type of qualification

Nome	Gender (M/F)	Course and location	Qualification

2.3 What constraints were faced in implementing the capacity building component of the project?

2.4 Are all the SABONET trained staff in position? Yes/No
If not, please give reasons

2.5 Has staff performance and outputs improved following SABONET training? Yes/No

(Please indicate e.g. if they have new responsibilities, published, undertaken new research etc.)

2.6 Have SABONET trained staff been promoted to strategic/senior positions after training? Yes/No

Please give details.

3. PROJECT IMPLEMENTATION AND COORDINATION**3.1 What was the role of the National Working Group?**

Approving proposals for project activities—Yes/No

Providing Peer Review for project outputs—Yes/No

Providing technical support for the SABONET project—Yes/No

Champion for the Project in other national/international forums—Yes/No

Channel for project outputs to policy formulation processes—Yes/No

Other (Please specify)

3.2 Did the National Working Group add value to the project implementation process at national level? Yes/No

If the National Working Group was an impediment, please suggest practical options that would have been more favourable to your country situation.

3.4 Was the support received from the Regional coordinator appropriate? Please explain.**3.5 Was the location of the Regional office appropriate?**

Yes/No

Comment:

3.6 Were the staff appointed at the regional office suitably qualified and competent? Yes/No

Comment:

3.7 Was the recruitment policy for the project staff at regional and national level appropriate and transparent?

Yes/No

Comment:

3.8 Was the set up for national coordination appropriate?

Yes/No

Comment:

3.9 Was the SABONET Steering Committee effective?

Yes/No

Please elaborate.

3.10 Please explain the role and contribution of the CBD and GEF national focal points during the project phase.**3.11 Was there sufficient support and guidance from your local UNDP office?**

Please explain.

4. INFORMATION MANAGEMENT**4.1 Does the institution have adequate computer hardware and software? Yes/No**

Please indicate current gaps and needs:

4.2 Do you maintain an institutional website? Yes/No**4.3 Is your website linked to the SABONET website and other regional partners?**

Please elaborate.

4.4 How many specimens have been databased?

Indicate number and percentage of your total collection.

4.5 Are all the red list taxa databased? Yes/No

Please indicate percentage databased.

4.6 What constraints and challenges have been faced in databasing?**4.7 What are the future plans for the database post-SABONET?****4.8 Have the SABONET database outputs been linked to any other relevant databases in your institution? Yes/No. Explain.****4.9 Is the national checklist complete? Yes/No****4.10 Please list some of the current users of the database, red list and national checklist.****5. BOTANICAL GARDENS****5.1 Do(es) the botanical garden(s) have appropriate and adequate staff? Yes/No**

Please elaborate indicating gaps and needs.

5.2 Has the botanical garden implemented a threatened plants conservation programme?

Indicate key highlights.

5.3 What are the planned activities post-SABONET such as to address gaps and needs highlighted by the botanic gardens needs assessment in your institutions?**6. LINKAGES AND PARTNERSHIPS****6.1 To what national processes and programmes has the project contributed?****6.2 Please list the strategic partnerships developed and stakeholders that have participated in implementing the project at national level.****6.4 What project exit strategy is in place at institutional and national level?**

Please explain.

6.5 Are there any pending project activities? If any, please indicate how they will be followed up.

6.6 What new project stakeholders have come on board after inception e.g. local communities, private sector, other ministries, NGO s etc?

6.7 Following the end user workshops, are there any plans to streamline the activities of the herbarium and botanical gardens to make taxonomy more relevant and taxonomic products easily accessible? Yes/No.
Please elaborate

6.8 What were the main shortcomings of the SABONET project?

(a) At institutional level

(b) At national level

(c) At regional level

6.10 What were the main strengths of the SABONET project?

(a) At institutional level

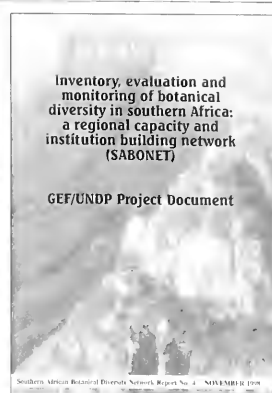
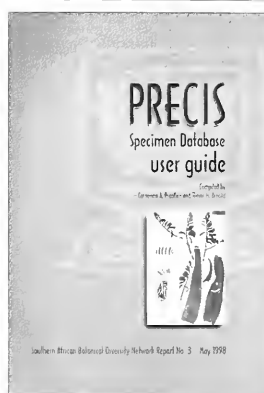
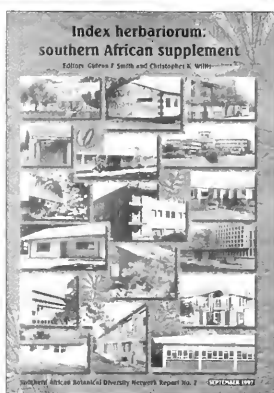
(b) At national level

(c) At regional level

6.11 How has the project contributed to regional and international level processes and agreements? (SADC, NEPAD processes, CBD, UNCCD etc.)
Please explain.

7. ANY OTHER COMMENTS





APPENDIX C

The SABONET Report Series

1. **Southern African national herbaria: status reports, 1996.** C.K. Willis (ed.). 1997. 59 pp. ISBN 1-874907-36-6.

The first book in the *SABONET Report Series* documents background information of the herbaria participating in the SABONET Project. It provides details of the status of these herbaria at the start of the Project, and of the activities and programmes that these institutions were involved in at that time. Most importantly for SABONET, it lists the needs in terms of infrastructure and human resources of these herbaria at the start of the Project—needs that the SABONET Project has aimed to address in the subsequent years.

2. **Index herbariorum: southern African supplement.** G.F. Smith & C.K. Willis (eds). 1997. 55 pp. ISBN 1-874907-37-4.

This publication was intended as a supplement to the world-renowned *Index Herbariorum* (8th edition), published in 1990 under the auspices of the International Association for Plant Taxonomy in its *Regnum Vegetabile* series by the New York Botanical Garden. The report is a collection of selected information on southern Africa herbaria, and based on information gathered during various country visits made by Christopher Willis, Gideon Smith, and Brian Huntley to selected southern Africa herbaria between July 1996 and June 1997. While most countries' herbaria are covered fairly extensively, there are many herbaria, particularly in South Africa, that have not been included.

3. **PRECIS Specimen database user guide.** C.A. Prentice & T.H. Arnold. 1998. 130 pp. ISBN 1-874907-39-0.

The *PRECIS Specimen database user guide* has been prepared as a help manual for users of the Spmn (Specimen) database. The Spmn database was developed by SANBI's Data Management Section as a stand-alone version of their corporate PRECIS database. The manual details the working of the Spmn database and is abundantly illustrated with screenshots of the database to allow for ease of understanding.

4. **Inventory, evaluation and monitoring of botanical diversity in southern Africa: a regional capacity and institution building network (SABONET).** B.J. Huntley, E.M. Matos, T.T. Aye, U. Nermark, C.R. Nagendran, J.H. Seyani, M.A.C. da Silva, S. Izidine, G.L. Maggs, C. Mannheimer, R. Kubirske, G.F. Smith, M. Kockemoer, G.M. Dlamini, P.S.M. Phiri, N. Nobanda & C.K. Willis. 1998. 73 pp. ISBN 1-919795-36-7.

This Project Document was published in response to the numerous requests received from people in various parts of the world wanting to know more about the SABONET project. This report says it all, including the project's background, justification, objectives, budget, Logical Framework Matrix, and workplan.

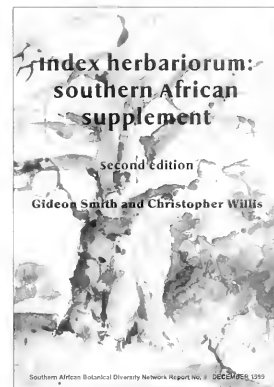
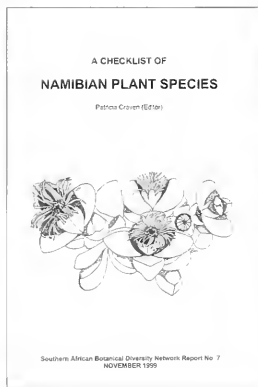
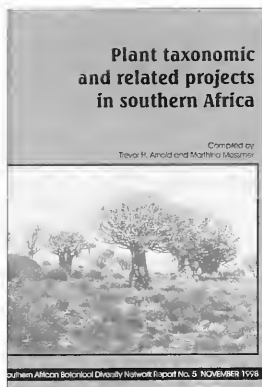
This publication will be useful to those wanting to know more about the SABONET Project, and particularly those interested in looking at the format used for GEF/UNDP project proposals. The report contains a wealth of black-and-white photographs of the plants, landscapes and people of the southern African region.

5. **Plant taxonomic and related projects in southern Africa.** T.H. Arnold & M. Mössmer (compilers). 1998. 101 pp. ISBN 1-919795-34-0.

Plant taxonomic and related projects in southern Africa is a directory of current research projects on plants of the southern African subcontinent. In addition to information on specific projects, it includes the contact details of the researchers engaged in taxonomic and other studies of southern African plants. (Details of a number of research projects from elsewhere in Africa were incorporated where these were supplied.)

The directory will assist users in:

- Finding out which researchers are working on which taxa or projects
- Finding out which taxa are currently being studied by other researchers



- Finding out which researchers are working on plants of a specific region
- Selecting suitable plant groups for further study
- Identifying projects for possible collaborative work
- Avoiding duplication of work

The directory was developed in response to a need expressed by botanists at various congresses of the South African Association of Botanists (SAAB) and later reiterated at a workshop on the "Future of botany in southern Africa" held during the SAAB Congress at the University of Stellenbosch, South Africa, in January 1996.

6. Southern African herbarium needs assessment. G.F. Smith, C.K. Willis & M. Mössmer. 1999. 88 pp. ISBN 1-919795-45-6.

The first step towards achieving SABONET's objective of expanding and improving herbarium collections was determining the needs of as many herbaria as possible within the region. SABONET and the National Botanical Institute (NBI) of South Africa started conducting a survey of herbaria during 1998. Fifty-five herbaria in the following countries were included: Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe.

The SABONET/NBI needs assessment survey is the most detailed and comprehensive one yet conducted in the region. Previous botanical surveys did not cover all the southern African countries, and not all the main collections in the subcontinent were targeted. The communication network established by SABONET has made it possible to survey all the important collections in the ten SABONET countries. In addition, all the needs of the herbaria have been translated into financial terms. For the first time, policy makers and managers of collections will have a clear indication of the exact monetary needs of specific collections for maintenance and development.

The report presents the survey results in five sections: taxon holdings, libraries and literature, capital equipment, staffing, and computerisation. Each section consists of a summary of the results for the entire region, which is followed by a more detailed discussion for each country, where applicable. The appendices provide detailed information for individual herbaria, arranged by country.

7. A checklist of Namibian plant species. P. Craven (ed.). 1999. 206 pp. ISBN 1-919795-37-5.

This checklist of Namibian plant species started as an updated list of previous publications. Over the past few years, however, it evolved to become a list that needs checking, that is, it is not necessarily a list of what occurs in Namibia, but what has been recorded as occurring there. The aim was to find out what 'may' occur here so that a means of identifying such taxa could be found, for example, suitable literature. The sources for the list were herbarium specimens, literature, and communication with botanists all over the world. Obviously, it was not possible to verify taxonomic status or include all herbarium specimens not yet computerised, hence the inclusion of notes to indicate problem areas.

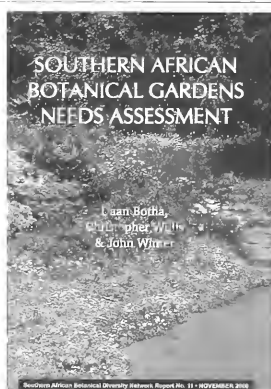
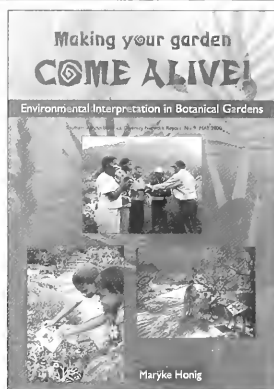
8. Index herbariorum: southern African supplement. 2nd edition. G.F. Smith & C.K. Willis. 1999. 181 pp. ISBN 1-919795-47-2.

This is the second edition of *Index herbariorum: southern African supplement*. The first edition was published in September 1997, but included only 20 southern African herbaria. This second edition provides updated information on those herbaria included in the first edition, as well as new information for some 75 additional herbaria within the region that were not included in the first edition. The authors, with support from colleagues from South Africa's National Herbarium, travelled more than 60,000 km within southern Africa, personally visiting many of the herbaria and accessing first-hand information directly from the various herbarium curators. Photographs of each herbarium are included in the publication. This regional publication contains the most detailed and comprehensive information regarding southern African herbaria ever published.

9. Making your garden come alive! Environmental interpretation in botanical gardens. M. Honig. 2000. 96 pp. ISBN 1-919795-50-2.

This book offers practical guidelines on how to develop an interpretation programme. It includes:

- The principles of effective interpretation.
- The application of these principles in planning interpretive walks, trails and signs.
- Case studies written by environmental interpreters.
- Many examples of creative low-budget interpretation.



- Innovative ways to engage with visitors, such as roving interpretation, discovery stations and educational theatre.

10. Plant taxonomic expertise: An inventory for southern Africa. M. Mössmer & C.K. Willis. 2000. 350 pp. ISBN 1-919795-53-7.

Plant taxonomic expertise is an inventory of local and overseas taxonomists and other plant diversity experts with knowledge of southern African plants. The book contains the biographical, contact, expertise, and interest information of 202 plant taxonomic experts, as well as a selected bibliography of publications. It covers 225 plant families and 1,300 genera. The main directory of experts, combined with several detailed indices, makes it easy to find information from a number of different starting points. For example, it is possible to look up the details of a specific person in the alphabetical main directory, find out the names of everybody interested in a specific plant genus or plant family, find information by research interest or geographical region, or look up experts by country, institution, and herbarium acronym. A selected bibliography of publications by the listed experts is included at the end of the book. Publications are arranged by author name, as well as by taxon name.

11. Southern African botanical gardens needs assessment. D.J. Botha, C.K. Willis & J.H.S. Winter. 2000. 156 pp. ISBN 1-919795-54-5.

This report represents the results of the first needs assessment of southern Africa's botanical gardens. The gardens survey was conducted between July 1998 and December 1999 through personal visits to the region's national botanical gardens by the authors, together with individual Curators (where available) of South Africa's National Botanical Gardens. In addition to those gardens surveyed outside South Africa, South Africa's eight National Botanical Gardens and the Durban Botanic Gardens were surveyed through correspondence during 1999–2000. The needs assessment was conducted with the aim of determining the needs of the various botanical gardens in the region and to gather first-hand information about each. The information was used to design a tailor-made Botanical Gardens Management Course for garden staff within the southern African region.

Twenty botanical gardens from eight of the ten countries in southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe) were includ-

ed in this needs assessment. Although they participate in the SABONET Project, neither Angola nor Swaziland has botanical gardens.

The book contains an overall analysis of the needs of southern African gardens, as well as detailed information on each participating garden.

12. Action plan for southern African botanical gardens. C.K. Willis & S. Turner (eds). 2001. 35 pp. ISBN 1-919795-61-8.

This report presents the results of the first meeting of botanical garden representatives of southern Africa at the Regional Workshop on Networking Southern African Botanical Gardens convened by the SABONET Project. Workshop participants represent twenty botanical gardens in eight southern African countries (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe). Although Angola and Swaziland form part of the SABONET Project, they were not included in the workshop, as neither country has a botanical garden.

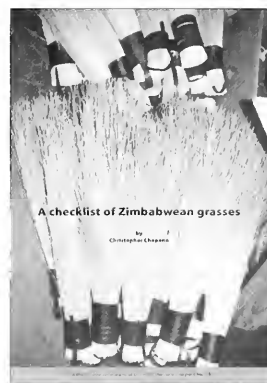
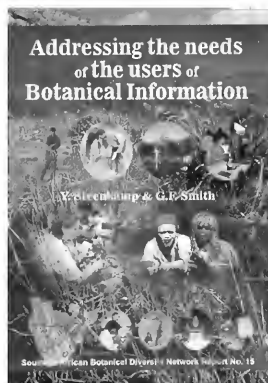
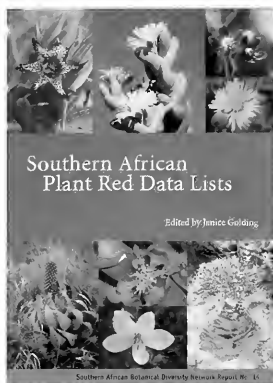
This is the first Action Plan for cooperation amongst southern African botanical gardens ever produced, and bears testimony to the impact the GEF/UNDP-funded SABONET project had on botanical diversity, capacity building, networking, and co-operation between plant diversity specialists in southern Africa. The initiatives associated with this Action Plan formed part of SABONET's capacity-building activities within the region.

13. Conspectus of southern African Pteridophyta. J.P. Roux. 2001. 223 pp. ISBN 1-919795-58-8.

This extensive publication provides an overview of the pteridophyte flora of southern Africa, and includes 33 families, 106 genera, and 501 species and infraspecific taxa. Includes keys and detailed descriptions. Illustrated with line drawings throughout. Countries included are Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe.

14. Southern African plant Red Data Lists. J.S. Golding (ed.). 2002. 256 pp. ISBN 1-919795-64-2.

The Southern African Plant Red Data Lists book contains information on approximately 4,100 Red Data List assess-



ments. The book contains a regional overview, with the assessments arranged by country. Each country section starts with an introductory text.

A concise guide to the IUCN categories and subcriteria is printed on the inside front cover of the book, making it easy for non-specialists to interpret the IUCN assessments of plants in the lists.

For ease of use, the taxa are arranged alphabetically under families, which are also arranged alphabetically within each section. Under each taxon name, in addition to the IUCN assessment, the endemism, threats, and distribution of the taxon are given, where these are available. In most cases, there are also additional notes on the taxon. IUCN 1994 categories were used for all assessments.

A detailed index lists all families, species, and synonyms that are found in the book. Appendixes include the 1994 and 2001 IUCN Red List Categories in both English and Portuguese, as well as the IUCN Guidelines for National Application of IUCN Categories.

15. Addressing the needs of the users of botanical information. Y. Steenkamp & G.F. Smith. 2002. 56 pp. ISBN 1-919795-65-0.

In an increasingly competitive scientific and fiscal environment, all research institutions must cater for the needs of their stakeholders and the end-users of the products they deliver, if they are to survive in the new millennium. This is no different for herbaria and the producers of botanical information, who must produce and deliver botanical information and services that their customers require. This report is the result of a workshop held at the National Herbarium of the NBI in Pretoria, South Africa, during 2002 to assess the needs of users of botanical information, and contains detailed analyses of what users want and need.

16. A checklist of Zimbabwean grasses. C. Chapano. 2002. 28 pp. ISBN 1-919795-66-9.

This book was the first SABONET Poaceae Checklist to be published, and includes an introduction to the grass flora of Zimbabwe, a literature review, and a guide for using the checklist. Also included is a map of Zimbabwe with the major floristic regions clearly indicated. The checklist is based

on the holdings of the National Herbarium of Zimbabwe (SRGH). The checklist comprises 152 genera, which accounts for 520 indigenous species and 20 naturalised alien species. Genera are listed in numerical order, and an alphabetical index makes it easy to find specific genera in the book.

17. A checklist of Lesotho grasses. K. Kobisi & L.E. Kose. 2002. 28 pp. ISBN 1-919795-68-5.

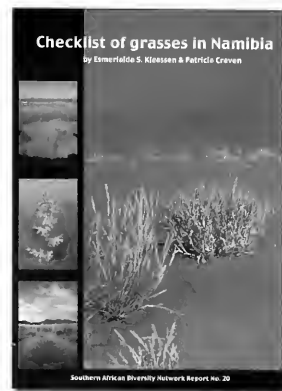
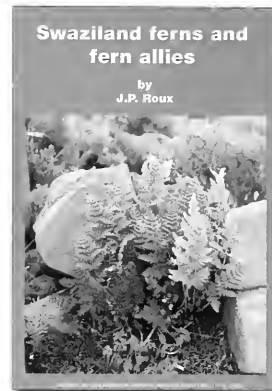
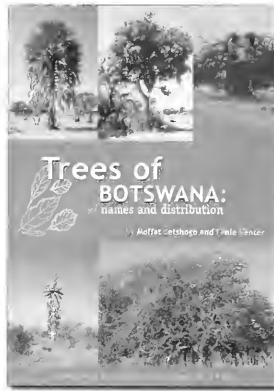
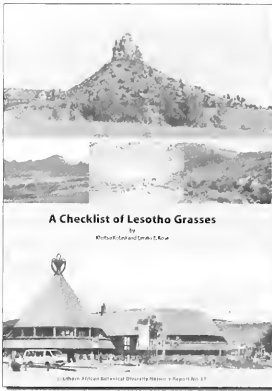
This checklist of Lesotho grasses begins with a tribute to Paseka Mafa and information about the herbarium of the National University of Lesotho. This is followed by an introduction to the flora and ecological zones of Lesotho, and the method followed to compile the checklist. Also included are two maps of Lesotho, which indicate the ecological and agricultural zones of the country. Guidelines for using the checklist are printed on the inside front cover for easy reference. A checklist of the grasses of Lesotho follows, based on the holdings of the National University of Lesotho Herbarium (ROML), Agricultural Research Herbarium (MASE) and Selmar Schonland Herbarium (GRA). The checklist comprises approximately 100 genera, which accounts for 250 indigenous and 50 naturalised alien species or infraspecific taxa. The book includes an alphabetical and a numerical index to genera.

18. Trees of Botswana: names and distribution. M.P. Setshogo & F. Venter. 2003. 160 pp. ISBN 1-919795-69-3.

This book is the first national checklist of the trees of Botswana. The book is divided into two sections: the first part provides descriptions of some common trees and shrubs of Botswana, and the second is the complete checklist. The list contains more than 440 species, arranged alphabetically by family and genus. Each listing includes information on common names and voucher specimens, a distribution map, and a line drawing of the leaf to aid identification. A detailed index includes scientific names, synonyms, and common names.

19. Swaziland ferns and fern allies. J.P. Roux. 2003. 242 pp. ISBN 1-919795-97-9.

A detailed account of the pteridophyte flora of Swaziland, based on a survey conducted by the author. The book describes more than 100 species, and also includes a comprehensive background chapter on the geology and vegetation



types of Swaziland. Families and genera are arranged phylogenetically, while species are arranged alphabetically within genera. Includes keys. Detailed line drawings and distribution maps. The index includes species and family names.

20. Checklist of grasses in Namibia. E.S. Klaassen & P. Craven. 2003. 130 pp. ISBN 99916-63-16-9.

The aim of this book is to provide information on the grasses of Namibia from local sources. Whereas much of the information on Namibian grasses in previous publications was derived from southern Africa, this book focuses specifically on Namibia. The information was sourced from notes on Namibian specimens and Namibian ethnobotanical studies. The book discusses and maps the 391 grasses indigenous to Namibia—10% of the total indigenous flora. Fourteen naturalised and nine cultivated species, as well as twelve escapes, are also included. Species are arranged alphabetically. In addition to a distribution map, each listing includes the following information: PRECIS number, synonyms, common names (Afrikaans, English, German, Jul'hoan, Khoekhoegowab, Oshiwambo, Otjiherero, Rucgiriku, Rukwangali, Shishambyu, Silozi, and Thimbukushu), life form, abundance, habitat, distribution, uses, voucher specimens, and references. The book also contains three indexes: an index to species and genus names, a numerical index of generic names, and a common name index.

21. A checklist of Zimbabwean bryophytes. P. Manyanga & S.M. Perold. 2004. 22 pp. ISBN 1-919976-02-7.

Bryophytes constitute an interesting component of the flora of Zimbabwe and this checklist is based on the specimens held at the National Herbarium of Zimbabwe (SRGH). The list is arranged alphabetically by family in the three major groups, Hepatophyta, Anthocerotophyta, and Bryophyta, and includes distribution information. The index lists families, genera and synonyms.

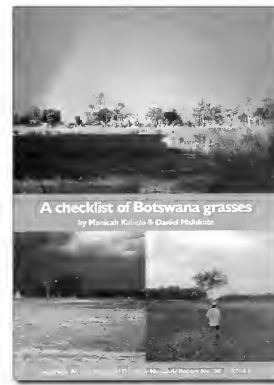
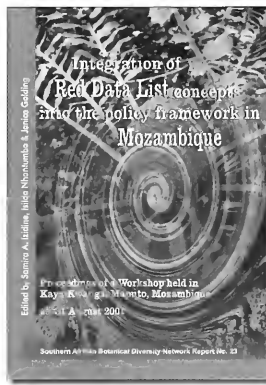
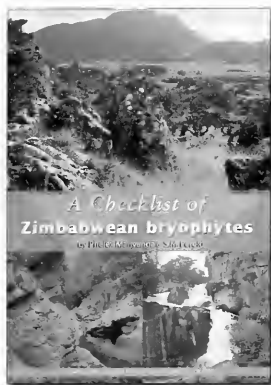
22. African Botanic Gardens Congress 'Partnerships and Linkages': proceedings of a congress held at Durban Botanic Gardens, South Africa, 24–29 November 2002. / Congrès des Jardins Botaniques Africains 'Relations et Partenariats': compte rendu d'un congrès tenu dans les Jardins Botaniques de Durban, Afrique du Sud, 24–29 Novembre 2002. C.K. Willis (ed.). 2004. 96 + 96 pp. ISBN 1-919976-04-3.

The first African Botanic Gardens Congress took place in the Durban Botanic Gardens, South Africa, in 2002. The aim of the congress was to establish the new African Botanic Gardens Network (ABGN).

This publication contains the text of the following presentations:

- Plant Collecting Workshop
- Red Data Listing Workshop
- Workshop on Environmental Education and Interpretation in Botanical Gardens
- The International Agenda for Botanic Gardens in Conservation: a key role for African botanic gardens
- Millennium Seed Bank: The Value of International Partnerships
- The CBD Challenge in Botanic Gardens: emerging responsibilities, priorities, and practices
- Botanic Gardens in Eastern Africa
- University Botanic Garden, Maseno: a teaching site for biodiversity and germplasm conservation
- Central African Botanical Gardens
- Botanic Gardens in West Africa
- Southern Africa's Botanical Gardens
- The status of North African botanic gardens
- Southern Africa: the SABONET experience
- Needs of Eastern African Botanical Gardens
- Needs of Central African Botanical Gardens
- West African botanical gardens: summary of needs
- Southern African Botanical Gardens: Regional Needs
- Towards An African Action Plan: Conservation of Threatened Plants and Habitats by African Botanic Gardens
- The way forward: regional expectations, needs and contributions towards the African Botanic Gardens Network
- Botanic Garden Networks: examples of the roles and activities of botanic gardens worldwide
- Action Plan for Botanic Gardens in the European Union
- American Association of Botanic Gardens and Arboreta
- Limbe and North Carolina Collaboration
- Medicinal Plants Project at Aburi Botanic Gardens, Ghana
- Partnerships and Linkages: Witwatersrand National Botanical Garden, South Africa
- Strategic framework and action plan for the African Botanic Gardens Network

The book also includes a list of the congress participants and their contact information and a list of useful Internet addresses.



23. Integration of Red Data List concepts into the policy framework in Mozambique: proceedings of a workshop held in Kaya-Kwanga, Maputo, Mozambique, 29–31 August 2001. S.A. Izidine, I. Nhantumbo & J. Golding (eds). 2004. 19 + 19 pp. ISBN 1-919976-05-1.

Mozambique boasts a rich biodiversity, but there is scanty knowledge about its state of conservation. Indigenous plants are used for medicinal purposes, as edible foods, and for commercial timber. Some have horticultural value and are traded and exported internationally. The main factor of threat is habitat degradation as a result of human disturbance. This set the context for a workshop held on action planning and strategies for the dissemination and implementation of the Plant Red List of Mozambique. This was hosted by the National Institute of Agronomic Research (INIA), which served as implementation agency of the Southern African Botanical Diversity Network, and the World Conservation Union (IUCN-Mozambique).

24. A checklist of Botswana grasses. M. Kabelo & D. Mafokate. 2004. 18 pp. ISBN 1-919976-06-X.

Botswana boasts a magnificent number of grass species: approximately 400 species, representing 94 genera, have been recorded. This constitutes nearly half of the grasses found in southern Africa. Genera and species in the checklist are listed in alphabetical order, and distribution information for each taxon is included.

This checklist was compiled using the grass collections housed in Botswana herbaria, namely the National Herbarium (GAB) and the University of Botswana Herbarium (UCBG) in Gaborone, and the Peter Smith Herbarium (PSUB) in Maun. In some cases specimens of some species recorded for Botswana were recorded only in herbaria outside Botswana. These are housed at either the National Herbarium and Botanic Garden, Harare (SRGH), National Herbarium, Pretoria (PRE), and the Herbarium, Royal Botanic Gardens, Kew (K).

25. Herbarium essentials: the southern African herbarium user guide. J.E. Victor, M. Koekemoer, L. Fish, S.J. Smithies & M. Mössmer. 2004. 93 pp. ISBN 1-919976-01-9.

Herbarium Essentials is an illustrated, Afrocentric manual for herbarium workers, supplying the basic information about a

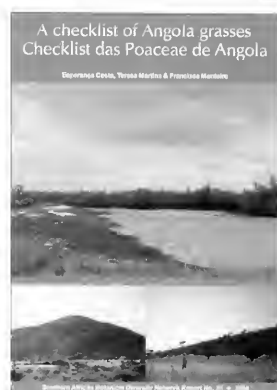
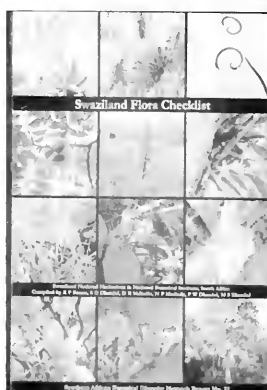
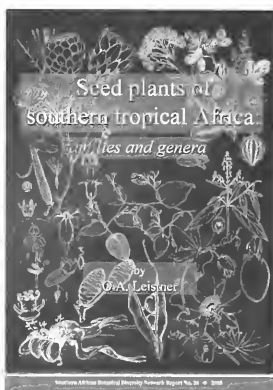
functional herbarium. It provides a theoretical background, as well as comprehensive methods for running a herbarium, taking its different aspects into account. These include plant collecting, mounting, scientific and physical curation, as well as computerisation. The combination of theory and practical expertise will equip you with the essential knowledge required to work in and run a herbarium. The book is lavishly illustrated in full colour and includes a comprehensive subject index.

26. Seed plants of southern tropical Africa: families and genera. O.A. Leistner. 2005. 498 pp. ISBN 1-919976-07-8.

Seed plants of southern tropical Africa documents the flora of Angola, Malawi, Mozambique, Zambia, and Zimbabwe. The flora of the five countries, as reflected here, comprises 228 families, 2,032 genera, and 11,637 species. The book is intended as a companion volume to *Seed plants of southern Africa: families and genera*, which covered Namibia, Botswana, South Africa, Swaziland and Lesotho, and is aimed at the serious student of our botanical diversity. It provides identification keys to all families and genera of seed plants indigenous to and naturalised in the region. Families and genera are critically described, together with notes on their distribution and size, both local and worldwide, and with lists of the most important literature. The latest views on relationships of families are reflected by means of dendrograms, and the classification of genera within the larger families is given. For easy reference, genera are arranged alphabetically within their family, and families are presented in alphabetical sequence within the three major groups: gymnosperms, dicotyledons and monocotyledons. A comprehensive glossary and an index to family and genus names conclude the work.

27. Swaziland Flora Checklist. K.P. Braun, S.D.V. Dlamini, D.R. Mdladla, N.P. Methule, P.W. Dlamini & M.S. Dlamini. 2004. 113 pp. ISBN 1-919976-10-8.

This comprehensive checklist for Swaziland comprises 3,441 species in 1,124 genera and 224 families, incorporating bryophytes, pteridophytes, gymnosperms, and angiosperms. Of these taxa, 200 are exotic. The checklist is arranged numerically, and includes synonyms, references, and voucher specimens for each species or subspecific taxon. The index lists family and genus names.



28. A checklist of Angola grasses / Checklist das Poaceae de Angola. E. Costa, T. Martins & F. Monteiro. 2004. 25 pp. ISBN 1-919976-09-4.

Although various studies have been undertaken on the grasses of Angola, this is the first Poaceae checklist for the country. The checklist is based on local research and existing Angolan and Portuguese publications, as well as *Flora zambesiaca*, *Flora of Tropical West Africa*, and *Flora of southern Africa*. The list is arranged alphabetically by genus, and includes synonyms and distribution data.

29. Herbaria in SABONET countries: building botanical capacity and meeting end-user expectations. T.J. Smith, G.F. Smith & Y. Steenkamp. 2004. 39 pp. ISBN 1-919976-11-6.

This report is an overall summary of what is required by the end-users of botanical information in southern Africa, and provides funding bodies with information relevant for decision-making regarding allocation of funds. It also reports on the activities and achievements of the SABONET project since its inception up to the publication of this document.

30. A preliminary checklist of the vascular plants of Mozambique / Catálogo provisório das plantas superiores de Moçambique. M.C. da Silva, S. Izidine & A.B. Amude. 2004. 183 pp. ISBN 1-919976-12-4.

This provisional checklist records 3,932 indigenous plant taxa for Mozambique, including bryophytes, pteridophytes, gymnosperms, and angiosperms. Of these, 177 are endemic and 300 are listed on the country's Red Data List. Families, genera and species are listed in alphabetical order, and distribution information for each taxon is included. Where available, common names and IUCN Red Data List status are also listed. Exotic species are listed in a separate appendix. The index includes genera, families, and generic synonyms. Information obtained from the plant specimen labels in the LMA (National Institute of Agronomic Research Herbarium, Maputo, Mozambique) and LMU (Eduardo Mondlane University Herbarium, Maputo, Mozambique) herbaria formed the basis of the checklist.

31. Plants of the Nyika Plateau: An account of the vegetation of the Nyika National Parks of Malawi and

Zambia. J.E. Burrows & C.K. Willis (eds). 2005. 432 pp. ISBN 1-919976-08-6.

The Nyika Plateau has been classified as one of Africa's Centres of Plant Diversity and is the largest montane complex in south-central Africa. Most of the Plateau lies in Malawi, with a small section across the border in Zambia.

Plants of the Nyika Plateau is a comprehensive account of the plants of the Nyika Plateau, incorporating bryophytes, pteridophytes, gymnosperms, and angiosperms. The detailed introduction presents information on climate, drainage, soils, fire, communities, plant diversity and endemism, and botanical exploration of the area.

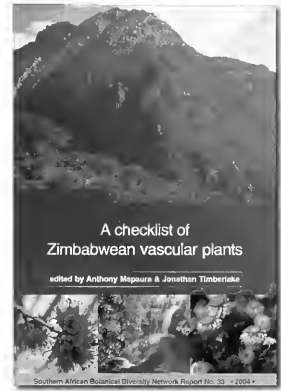
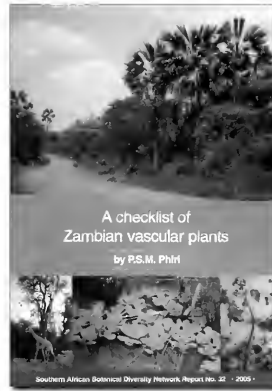
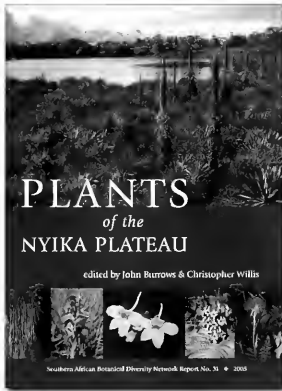
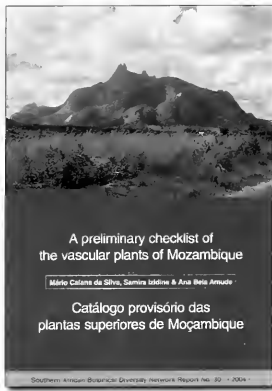
The book presents a synthesis of all the botanical knowledge currently available for the Nyika National Parks of Malawi and Zambia. It was originally intended to be just a conservation checklist for these parks, but has gone beyond being a mere checklist in many ways. It lists and describes 1,891 plants known to occur in these two national parks. Each species or subspecific taxon is listed with synonyms and a description, as well as information on distribution, references, and voucher specimens. The species accounts are arranged alphabetically. The book is illustrated throughout with line drawings (one representative species per genus) and eight pages of colour photographs.

An extensive glossary, index of plant collectors, index to common names, and index to scientific names and illustrations conclude the work.

32. A checklist of Zambian vascular plants. P.S.M. Phiri. 2005. 169 pp. ISBN 1-919976-13-2.

A checklist of Zambian vascular plants starts off with a comprehensive introduction that discusses the location, climate, geology, relief, soils, biological diversity, and vegetation of Zambia. It also provides two short but useful sections on endemism and botanical nomenclature that explains and clarify these two issues for the non-specialist. Two maps of Zambia, one showing the provinces of the country, and the other the main roads and towns, are provided.

The checklist contains data on 221 families, 1,393 genera and 6,280 species and infraspecific taxa of indigenous plants,



as well as 141 exotic species. It is arranged alphabetically for easy reference. In addition to currently accepted names, synonyms and distribution are also given. An appendix lists endemic and near-endemic species and their distribution in Zambia. The index lists family and genus names.

33. A checklist of Zimbabwean vascular plants. A. Mapaura & J. Timberlake. 2004. 148 pp. ISBN 1-919976-14-0.

This checklist is the first recent published comprehensive list of Zimbabwe's vascular plant taxa and their distribution within the country. It grew from a compilation of plant species held in the National Herbarium, Harare (SRGH). Although most taxa are represented by specimens at SRGH, many are not. Hence many records (both of taxa and distribution) from Mark Hyde's unpublished checklist were added to the preliminary checklist of herbarium holdings, along with records from the published literature. The list is arranged alphabetically by family and genus. A total of 5,930 vascular plant taxa (species, subspecies, and varieties) within 1,527 genera and 231 families are listed; genus numbers, synonyms, and distributions are also given. Both numerical and alphabetical indexes are provided.

34. A preliminary checklist of the plants of Lesotho. L. Kose & K. Kobisi. 2005. 92 pp. ISBN 1-919795-67-7.

This checklist of the Lesotho flora includes bryophytes, pteridophytes, gymnosperms, and angiosperms, and is arranged alphabetically by family and genus. About 3,000 plant species, belonging to 800 genera and 200 families are listed; genus numbers, synonyms, distributions, and references are also given. Both numerical and alphabetical indexes are provided.

35. Swaziland Tree Atlas—including selected shrubs and climbers. L. Loffler & P. Loffler. 2005. ISBN 1-919976-19-1.

A total of 634 tree species are listed in the Swaziland Tree Atlas, which represents just over 17% of Swaziland's indigenous flora. The Atlas has a comprehensive introduction with background information on the country as well as the atlasing project. The atlas includes synonyms, common names in English and Siswati, and a distribution map for each taxon, as well as information on distribution, abundance, habitat,

endemism, Red Data List status, and information on usage. Exotic species are also included. The detailed index provides family and species names.

36. Growing rare plants: a propagation handbook. G. Nichols. 2005. ISBN 1-919976-17-5.

This practical and helpful book on propagating rare southern African plants starts with five chapters of general guidelines on propagation, plant collecting, and plants with special needs. The final chapter gives specific information for individual species and genera. This chapter forms the bulk of the book, and is arranged alphabetically by family. The book also includes a detailed glossary, bibliography, and index to families, genera, and common family names. The laminated wipe-clean inside front cover lists soil mix recipes, while the inside back cover gives a list of suppliers of horticultural supplies.

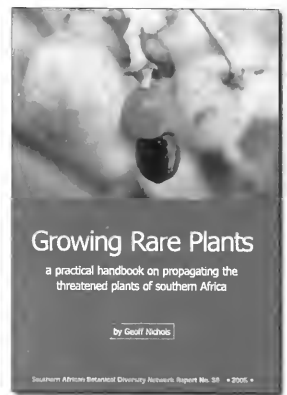
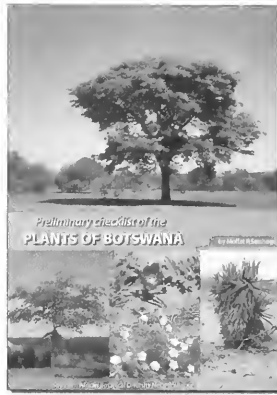
This informative book with its colourful layout, beautiful photographs, and down-to-earth text is destined to become one of SABONET's most popular books.

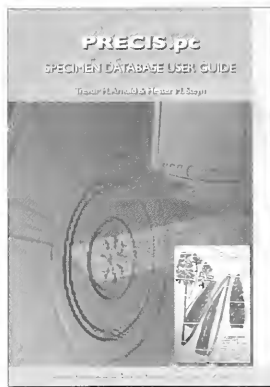
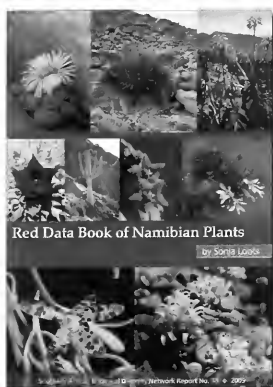
37. A preliminary checklist of the plants of Botswana. M.P. Setshogo. 2005. ISBN 1-919976-18-3.

This book is the first comprehensive checklist of Botswana plants and includes data on 182 families, 911 genera, and 3,086 species and infraspecific taxa. Bryophytes, hepato-phytes, pteridophytes, dicotyledons, and monocotyledons are included in the checklist. Informative icons indicate whether a species is one or more of the following:

- Naturalised or introduced plant
- Tree or shrub
- Succulent
- Parasitic plant
- Rare or candidate for Red Data listing
- Endemic
- Aquatic
- Plant invader or potential invader

The book also contains sections on the history of plant collecting in Botswana and species with type specimens from Botswana. An appendix lists species possibly occurring in Botswana. The index provides references to families, genera and generic synonyms.





look-up tables, printing of labels, extraction of records, local setting, and backing-up of the database. This very useful publication is essential for anyone who uses SANBI's PRECIS.pc database, and will be updated in the future through an electronic help file that will be provided with the database.

41. Checklist of South African plants. G. Germishuizen, N.L. Meyer, Y. Steenkamp & M. Keith (eds). (In press, publication expected March 2006.) Approximately 1,200 pp. ISBN 1-919976-25-6.

With undoubtedly the largest flora in the SABONET region, South Africa had an enormous task when it was asked to prepare a checklist of South African plants for publication in the *SABONET Report Series*. At approximately 1,200 pages, this publication will be the thickest and heaviest of the SABONET reports, and will be the second in the series to be published in hard cover (the first was *Southern African Plant Red Data Lists*, Report No. 14). In addition to listing all the indigenous and naturalised (including invasive) plants known to occur in South Africa, it will also be the first attempt to list all the plants known or suspected to be endemic to the country.

42. Checklist of the flowering plants of Sub-Saharan Africa. An index of accepted names and synonyms. R.R. Klopper, C. Chatelain, V. Banninger, C. Habashi, H.M. Steyn, C. de Wet, T.H. Arnold, L. Gautier, G.F.

Smith & R. Spichiger. (In press, publication expected March 2006.) Approximately 900 pp. ISBN: 1-919976-27-2.

The African Plant Checklist and Database Project (APCD) provides botanists with the first-ever angiosperm checklist and database for Sub-Saharan Africa. This was achieved by merging two existing datasets for Southern and Tropical Africa. The APCD, for the first time, gives accurate statistics for the angiosperm flora of Sub-Saharan Africa. There are 50,136 current taxa in the database, with an additional 393 taxa where there are discrepancies in genus concept between the two original datasets. Taxa are arranged into 274 families and 3,802 current genera. In the checklist each current name and synonym is preceded by a Flora code, indicating the source of the name, i.e. either the Southern or Tropical African dataset, or both. An asterisk attached to the code indicates a naturalised taxon. In this way taxa that are indigenous in, for instance, Tropical Africa, but naturalised in Southern Africa, can be identified. By pointing out problems and discrepancies in taxonomic opinion between the two original datasets, the APCD highlights taxa where further research is necessary.

43. Final Project document. Looking back on the SABONET Project: a triumph of regional cooperation. Y. Steenkamp, S.J. Siebert, G.F. Smith, B.J. Huntley & C.K. Willis. (This publication.)



APPENDIX D

Number of people appointed in the different countries under the SABONET Project*

Positions	Countries										Management	Number/position
	Angola	Botswana	Lesotho	Malawi	Mozambique	Namibia	South Africa	Swaziland	Zambia	Zimbabwe		
Research Officer	2	1	2	2	3	1	3	1	1	1	3	20
Technical Assistant	1	1	1	1	2	2	1	1	2	3	6	21
Data Entry Clerk	2	0	3	3	2	2	8	0	1	3	0	24
Horticulturist	0	0	1	1	1	1	1	0	1	1	0	7
Total staff/country	5	2	7	7	8	6	13	2	5	8	9	72

* Situation on 31 December 2002. With the exception of Horticulturists, SABONET did not support staff after this date. Horticulturists were supported for an additional year.

APPENDIX E

Breakdown of country participation in SABONET training courses

Country	Number of participants	H	G	C	H	F	G	A	C	R	G	M	C	C	H	C	D	A	E	H	B	P	B	C	C	H	Total Courses attended	
		M	R	I	2		R	Q	3	D	R	W	4	5	M	6	M	C	I	M	G		G	7	C	M		
	Total [male /female]	1	1		2		2			L	3			3					A	4	1		2			Z		
ANGOLA	7[2/5]	1	0	0	0	0	1	1	2	2	1	1	1	1	1	1	1	0	1	1	0	1	0	1	0	0	18	
BOTSWANA	18[12/6]	1	0	0	1	1	1	6	1	1	1	1	2	1	1	2	1	0	1	1	1	1	2	2	0	0	30	
LESOTHO	12[10/2]	1	0	0	1	1	1	3	1	1	1	0	0	2	0	2	2	1	0	1	1	1	1	1	0	0	23	
MALAWI	19[17/2]	1	0	0	1	2	8	1	2	1	2	1	1	2	1	1	2	1	1	1	3	1	3	2	0	0	39	
MOZAMBIQUE	15[9/6]	2	0	0	1	1	0	1	0	1	1	1	1	1	1	3	1	0	1	1	3	3	3	1	0	0	28	
NAMIBIA	13[3/10]	1	6	8	0	1	1	1	1	1	1	0	2	1	1	1	2	2	0	1	1	1	2	1	0	0	37	
SOUTH AFRICA	36[22/14]	1	0	0	1	2	1	1	1	2	3	1	1	2	2	3	1	1	0	2	1	9	2	9	2	0	0	48
SWAZILAND	8[6/2]	1	0	0	1	1	1	0	1	1	1	0	0	1	1	1	1	0	1	1	1	0	1	1	0	0	17	
ZAMBIA	32[21/11]	1	0	0	1	2	1	1	1	1	1	1	8	3	2	1	2	1	0	2	1	1	2	1	1	0	11	46
ZIMBABWE	26[16/10]	2	0	0	1	1	1	1	1	1	10	3	2	2	2	3	1	0	1	2	3	2	5	2	4	0	51	
CAMEROON	1[1/0]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
SEYCHELLES	1[1/0]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
TANZANIA	1[1/0]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
Total Number of Participants	189 [121/68]	13	6	8	8	12	15	12	14	12	14	18	16	17	12	14	18	12	3	11	11	24	14	27	14	4	11	340
Male/female ratio	1.8 : 1																											

1) HMI: (Regional) Herbarium Management and Plant Conservation Course, National Herbarium (PRE), Pretoria, South Africa, 4 November–6 December 1996

2) GRI: (National) Grass Identification Course, National Herbarium (WIND), Windhoek, Namibia, 3–7 March 1997

- 3) C1: (National) PRECIS Computer Course, National Herbarium (WIND), Windhoek, Namibia, 11–14 March 1997
- 4) C2: (Regional) Computer Course, National Herbarium (PRE), Pretoria, South Africa, 21–30 May 1997
- 5) HM2: (Regional) Second Herbarium Management Course, National Herbarium (PRE), Pretoria, South Africa, 4–22 August 1997
- 6) F: (Regional) Pteridophyte Identification and Botanical Nomenclature Training Course, National Herbarium (MAL), Zomba, Malawi, 10–18 November 1997
- 7) GR2: (Regional) Grass Identification Course, Herbarium (ROML), National University of Lesotho, Roma, Lesotho, 7–12 December 1997
- 8) AQ: (Regional) Aquatic Plants Training Course, Moremi Game Reserve, Okavango Delta, Botswana, 30 March–7 April 1998
- 9) C3: (Regional) Database Managers Training Course, National Herbarium (PRE), Pretoria, South Africa, 1–5 June 1998
- 10) RDL: (Regional) Threatened Plants (Red Data List) Training Course, National Herbarium (PRE), Pretoria, South Africa, 8–12 June 1998
- 11) GR3: (Regional) Grass Identification Course, University of Zimbabwe/National Herbarium, Harare, Zimbabwe, 25–29 January 1999
- 12) MW: (Regional) Miombo Woodland Training Course, Copperbelt University, Kitwe, Zambia, 31 May–11 June 1999
- 13) C4: (Regional) Database management Course (Beginners), National Herbarium (PRE), Pretoria, South Africa, 11–14 August 1999
- 14) C5: (Regional) Database management Course (Advanced), National Herbarium (PRE), Pretoria, South Africa, 16–19 August 1999
- 15) HM3: (Regional) 3rd Herbarium Management Course, National Herbarium (PRE), Pretoria, South Africa, 11–29 October 1999
- 16) C6: (Regional) Database Management Course (Beginners), National Herbarium (PRE), Pretoria, South Africa, 4–9 December 2000
- 17) DM: (Regional) Database Managers Short Course for senior staff of herbaria, Safari Conference Centre, Windhoek, Namibia, 9 February 2001
- 18) AC: (National) Botanical Drawing Course, National Herbarium (PRE), Pretoria, South Africa, 24–26 April 2001
- 19) EIA: (Regional) Environmental Impact Assessment Course for Botanists, National Herbarium (PRE), Pretoria, South Africa, 7–10 May 2001
- 20) HM4: (Regional) Herbarium Managers Course for senior staff of herbaria, National Herbarium (PRE), Pretoria, South Africa, 13–24 August 2001
- 21) BG1: (Regional) Botanical Gardens Management Course, Pretoria Botanical Gardens and Nylsley Nature Reserve, South Africa, 22 October–3 November 2001
- 22) P: (Regional) Plant Identification Course, Herbarium (LMA), Institute for Agronomic Research (INIA), Maputo, Mozambique, 10–12 December 2001
- 23) BG2: (Regional) Botanical Gardens Horticultural Course, Durban Botanic Gardens, South Africa, 8–20 April 2002
- 24) C7: (Regional) Database management Course (Advanced), National Herbarium (PRE), Pretoria, South Africa, 13–22 May 2002
- 25) CC: (National) Cycad Conservation Course, Lowveld National Botanical Garden, Nelspruit, South Africa, 28 July–3 August 2002
- 26) HMZ: (National) Herbarium Management and EIA Course, University of Zambia, Lusaka, Zambia, 15–21 December 2002



APPENDIX F

Equipment purchased by each of the participating countries for use in their herbaria since 1998

EQUIPMENT	Angola	Botswana	Lesotho	Malawi	Mozambique	Namibia	South Africa	Swaziland	Zambia	Zimbabwe	TOTAL ITEMS
Air conditioner	2	0	0	0	1	0	0	0	0	0	3
Comero — digital	0	1	0	1	0	1	3	1	1	0	8
Comero — film	1	1	1	1	1	1	0	0	1	1	8
Comping equipment	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8 sets
Conopy (vehicle)	0	1	1	1	1	1	1	1	1	1	9
Computer	4	6	6	5	7	6	26	3	4	5	72
Deep freezer	1	1	2	0	1	0	1	1	1	0	8
Drying oven	0	0	0	0	1	0	1	1	0	0	3
E-mail/Internet	0	1	1	1	1	1	1	1	1	1	9
Fox machine	1	1	1	1	2	0	1	0	0	0	7
GPS	1	0	0	2	1	0	3	1	1	1	10
Guillotine	1	2	0	0	0	0	0	1	0	0	4
Herborium cabinet	0	10	27	0	8	36	19	0	8	12	120
IOmega zip drive	1	2	1	1	2	1	5	1	1	2	17
Microscope — light	2	0	2	2	1	1	2	2	0	1	13
Microscope — stereo	0	0	0	0	0	2	4	0	1	0	7
Microwave oven	0	0	2	0	1	0	0	0	0	0	3
Off-road vehicle	1	1	1	1	1	1	1	1	1	1	10
Overhead projector	1	0	1	0	0	0	0	0	0	0	2
Printer	1	1	6	2	1	1	8	1	1	1	23
Scanner	1	0	0	0	0	0	2	0	1	0	4
Slide projector	0	0	1	1	0	0	0	0	0	0	2
UPS	4	1	3	1	3	0	1	0	1	3	17
Photocopier	0	0	0	0	1	0	0	1	0	0	2



Some of the SABONET off-road vehicles during the Nyika Expedition. (Photo: C. Willis)

APPENDIX G

SABONET sponsorship for postgraduate degrees (1999–2004)

Country	BSc (Hons) / BTech	MSc	Number of students per country (1999 - 2004)	Degrees obtained per country (1999 - 2004)
Angola			2	0 [1*]
Ms Teresa Martins	UCT 2000*			
Ms Georgina Neta*		UL 2003/4/5		
Batswana			2	2
Ms Queen Turner	UW 2000*			
Mr Mbaki Muzila	UFS 2001	UCT 2002/3		
Lesotha			3	5 [6*]
Mr Paseka Mafa	UCT 1999	UCT 2000		
Ms Lerato Kase	US 2000	US 2001		
Ms Bakang Theko*	UFS 2001	UFS 2002/3/4/5		
Malawi			3	6
Ms Elizabeth Mwafonga	UCT 2000	UCT 2001		
Mr Mphamba Kumwenda	US 2001	US 2002/3		
Mr Dickson Kamundi	UW 2001	UW 2002/3		
Mozambique			1	1
Ms Samira Izidine		UP 2002/3		
Namibia			4	3 [4*]
Ms Silke Bartsch	UCT 2000			
Ms Patricia Craven		US 2001		
Ms Esmeralda Klaassen	CT 2002			
Ms Coleen Mannheimer*		UR 2002/3/4/5		
South Africa			3	4
Mr Salamon Nkoana	UP 1998	UP 2001/4		
Mr Chris Cupido		UCT 1999		
Mr Mactavish Makwarela		US 2000		
Swaziland			1	2
Mr Titus Dhlamini	UCT 1996	UCT 1999		
Zambia			3	6
Mr David Chuba	UCT 1999	UCT 2000		
Mr Kunda Changwe	UW 2000	UW 2001		
Ms Angela Gano-Bwaya	UW 2001	UW 2002/3		
Zimbabwe			4	4
Mr Ezekiel Kwembeya		UCT 1999		
Mr Claid Mujaju		UCT 1999		
Mr Phelex Manyanga		UCT 2001		
Ms Ruvimbo Mapaya		UCT 2002/3		
13 male/13 female	14 [16]	19 [22]	26	33 [36*]

* Did not complete degree

* Expected to obtain degree in 2005

UNIVERSITIES

CT: Cape Technicon, UL: University of Lisbon, Portugal, UCT: University of Cape Town, UFS: University of the Free State, UP: University of Pretoria, UR: Rhodes University, US: University of Stellenbosch, UW: University of the Witwatersrand

APPENDIX H

Number of SABONET internships undertaken by herbarium and botanical gardens staff from participating countries during course of the Project

Internships	Countries										Total
	Angola	Botswana	Lesotho	Malawi	Mozambique	Namibia	South Africa	Swaziland	Zambia	Zimbabwe	
Herbaria	4	9	4	4	6	4	14	3	2	2	52
In-country*	4	5	1	0	2	3	11	2	0	1	28
Other country**	0	4	3	4	4	1	3	1	2	1	23
Botanical gardens	0	3	0	3	3	4	4	0	2	4	23
In-country	0	1	0	0	0	1	3	0	0	0	5
Other country	0	2	0	3	3	3	1	0	2	4	18
Total	4	12	4	7	9	8	18	3	4	6	75

* In-country: A participating institution invites an expert from the region to visit one of their herbaria or botanical gardens.
 ** Other country: A participating institution sends staff member from one of their herbaria or botanical gardens to another institution in the region.



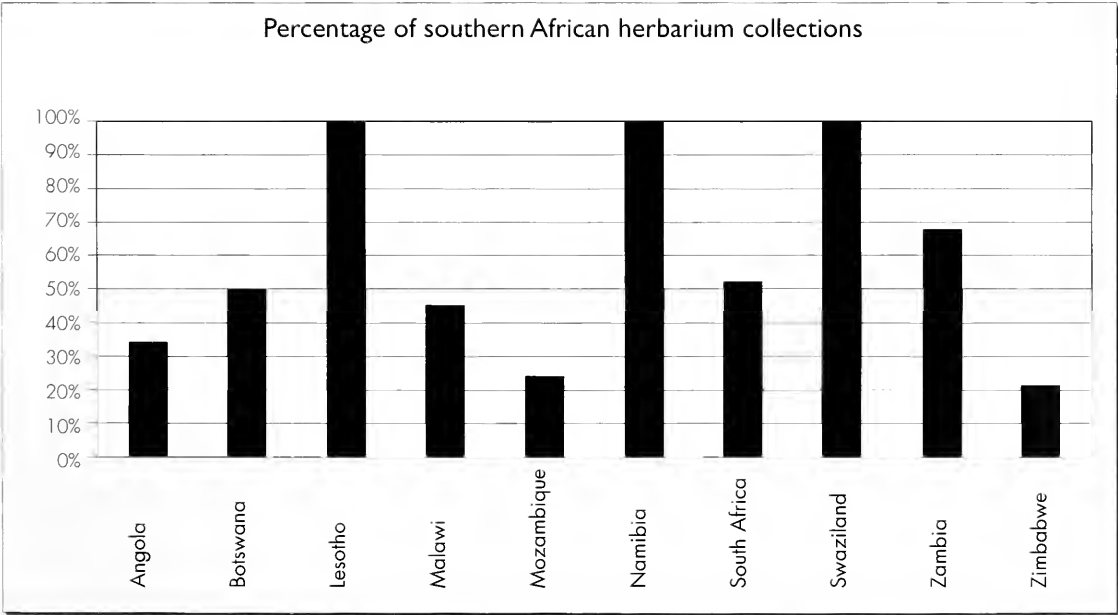
Internees discussing the propagation of bulbs at Kirstenbosch NBG. (Photo: SABONET)

APPENDIX I

Number and percentage of herbarium specimens computerised by each of the herbaria under the auspices of SABONET

Total Collections					Poaceae Collections			
Country	Participating Herbarium	Total specimens in participating	Number computerised herbaria	Percentage of total	Stored in safe haven at PRE	Poaceae specimens in participating herbaria	Number computerised	Percentage of total
Angola	LUAI	36,000	12,303	34%	12,303	1,826	1,826	100%
Botswana	GAB	15,000	5,695	38%	4,931	1,213	1,213	100%
	UCBG	10,000	5,581	56%	5,581	851	851	100%
	PSUB	6,000	4,104	68%	4,104	730	730	100%
Total Botswana herbaria:		31,000	15,380	50%		2,794	2,794	100%
Lesotho	ROML	28,830	28,830	100%	28,830	2,280	2,280	100%
	MASE	15,255	15,255	100%	15,255	1,539	1,539	100%
Total Lesotho herbaria:		44,085	44,085	100%		3,819	3,819	100%
Malawi	MAL	100,000	45,400	45%	31,889	3,334	3,334	100%
Mozambique	LMA	100,000	22,301	22%	22,301	9,206	9,206	100%
	LMU	22,000	6,469	29%	6,469			
Total Mozambique herbaria:		122,000	28,770	24%		9,206	9,206	100%
Namibia	WIND	96,934	96,934	100%	96,934	11,414	11,414	100%
South Africa	NBG	500,000	71,352	14%	65,693	15,371	15,371	100%
	NH	100,000	52,478	52%	52,478	8,200	8,200	100%
	*PRE	1,200,000	809,156	67%	809,156	92,893	92,893	100%
Total South Africa herbaria:		1,800,000	932,986	52%		116,464	116,464	100%
Swaziland	SDNH	12,920	12,920	100%	12,920	727	727	100%
Zambia	UZL	25,000	16,850	67%	16,757	2,281	2,281	100%
Zimbabwe	SRGH	500,000	107,133	21%	107,133	18,629	18,629	100%
TOTAL		2,889,939	1,341,531	46%	45%	179,700	179,700	100%

*760,000 (63% had been encoded pre-SABONET)



APPENDIX J

SABONET and the GSPC Linking the targets of the global strategy for plant conservation (GSPC) and SABONET logistic framework objectives

by Yolande Steenkamp (SABONET Regional Coordinator)

Introduction

The Global Strategy for Plant Conservation (GSPC) is an initiative of the Convention on Biological Diversity (CBD) that was signed by most of the world's countries. It has set sixteen targets divided into five main objectives that must be met by 2010. The sixteen targets are:

1. A widely accessible working list of known plant species, as a step towards a complete world flora.
2. A preliminary assessment of the conservation status of all known plant species, at national, regional, and international levels.
3. Development of models with protocols for plant conservation and sustainable use based on research and practical experience.
4. At least 10% of each of the world's ecological regions effectively conserved.
5. Protection of 50% of the most important areas for plant diversity assured.
6. At least 30% of production lands managed consistent with the conservation of plant diversity.
7. 60% of the world's threatened species conserved *in situ*.
8. 60% of threatened plants species in accessible *ex situ* collections in the country of origin, and 10% included in recovery and restoration programmes.
9. 70% of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained.
10. Management plans in place for at least 100 major alien species that threaten plants, plant communities, and associated habitats and ecosystems.
11. No species of wild flora endangered by international trade.
12. 30% of plant-based products derived from sources that are sustainably managed.
13. The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted.

14. Importance of plant diversity and the need for its conservation incorporated into communication, educational, and public-awareness programmes.

15. Number of trained people working with appropriate facilities in plant conservation increased according to national needs.

16. Networks for plant conservation activities established or strengthened at national, regional or international levels.

The Southern African Botanical Diversity Network (SABONET) Project was established several years before the GSPC was implemented by the CBD. SABONET's immediate objective was the development of a strong core of professional botanists, taxonomists, horticulturists, and plant diversity specialists within the ten countries of southern Africa, competent to inventory, monitor, evaluate, and conserve the botanical diversity of the region in the face of specific development challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity (CBD). Specific objectives that further elaborate on the Project's immediate objective were detailed in a logical framework for the Project, and are as follows:

1.00 Trained professional southern African plant taxonomists and plant diversity specialists

1.10 Staffing needs determined and appropriate staff placed in national herbaria.

1.20 Training needs of professional southern African plant taxonomists and plant diversity specialists identified.

1.30 Develop training courses as a participatory process and formalised within the region.

1.40 Regional training courses implemented.

1.50 National/sub-regional training courses implemented.

1.60 Short-term internships and professional exchange of personnel between institutions in order to develop technical skills and outputs.

1.70 Postgraduate and graduate (needs-driven) support for national herbarium staff at tertiary institutions.

1.80 Improve and develop managerial skills for institutional development.

2.00 Formal establishment of a collaborating Southern African Botanical Diversity Network

2.10 Project Steering Committee appointed and functioning.

2.20 Appointment of Project Coordinator, Assistant, Financial Officer, Regional Information Technology staff.

2.30 Identify role players for the National Working Groups.

2.40 Establish and support functional National Working Groups in each participating country.

2.50 Publication of a Network newsletter.

2.60 Production of regional and/or national publications.

2.70 At least two regional/sub-regional collaborative field surveys and collecting expeditions undertaken in under-surveyed areas within the region.

3.00 Electronic information systems on the region's plant diversity developed and functioning which document the region's botanical diversity

3.10 Purchasing of computer hardware and software in national herbaria.

3.20 Training of herbarium staff in information technology and the development and use of database(s) through regional and national training courses.

3.30 Computerisation of plant specimens stored in national herbaria.

3.40 Continual upgrading and improvement of the information technology functions in national herbaria to allow effective database output.

3.50 Communication between national herbaria through electronic means (electronic mail, Internet and other forms of communication).

3.60 Development and maintenance of a dedicated SABONET website.

4.00 Production of regional human and infrastructural inventories

4.10 Preparation of human resource expertise inventories.

4.20 Preparation, distribution, collation, and analysis of questionnaires to determine the available infrastructure and facilities amongst botanical institutions within the region.

5.00 Plant diversity evaluations and monitoring within the region

5.10 Database leads to maps of plant species distributions by region, country, province, or quarter-degree grid.

5.20 Digitised vegetation maps of major vegetation types, biomes, and ecosystems within the region.

5.30 Production of relational databases in GIS formats (forms bulk of SECOSUD-linked activity).

5.40 National field collecting expeditions (lead to national reports and improving people's skills in report writing, amongst others), including bilateral expeditions.

5.50 Production of national flora checklists, herbarium specimen checklists.

5.60 Linkages developed between national herbaria and institutions with responsibility for plant conservation to promote multidisciplinary conservation, e.g. end-user workshops.

5.70 Identification and refinement of botanical hotspots, and centres of diversity and plant endemism within the region.

5.80 Identification of priority taxa for inclusion in *ex situ* living collections within botanical gardens of the region (see Output 6) as part of the Threatened Plants Programme.

5.90 Identification of under-surveyed areas.

5.100 Evaluation of the conservation status of selected vegetation types/ecosystems/biomes per country and region.

6.00 Development of capacity in southern Africa to initiate a regional botanical gardens conservation strategy

6.10 Botanical gardens needs assessment conducted and the results published.

6.20 Regional workshops to discuss regional botanical gardens needs assessment report and networking of southern African botanical gardens.

6.30 Co-opt botanical garden representatives onto National Working Groups.

6.40 Appropriate staff placed in National Botanical Gardens.

6.50 Purchasing of computer hardware and software in national botanical gardens; linking of botanical gardens to e-mail.

6.60 Technical workshop to develop threatened plant conservation programmes in botanical gardens.

6.70 Implement threatened plant programmes in 20 southern African botanical gardens linked to the International Agenda for Botanic Gardens in Conservation.

6.80 Exchange staff skills and expertise between botanical gardens; exchanges linked to the threatened plant programmes in each specific garden.

6.90 Contribution to the African Botanic Garden Network (ABGN).

6.100 Develop and implement training courses as identified in the Regional Gardens Workshop.

6.110 Conduct one-day National Workshops to discuss proposed threatened plant programmes with various stakeholders.

6.120 Regional monitoring team established to evaluate threatened plant programmes in southern African botanical gardens.

Although the SABONET Project was conceived and implemented several years before the CBD introduced and implemented the GSPC, many of its objectives can be correlated to the GSPC targets. SABONET therefore, in meeting its goals and objectives, has already made a contribution towards meeting the sixteen GSPC targets in southern Africa. The following section elaborates on the linkage between the GSPC targets and SABONET's logical framework objectives, and on how SABONET has already contributed towards meeting the GSPC targets.

Targets and objectives

The linkage between the GSPC targets and the SABONET logical framework objectives are indicated in the accompanying table, and are discussed in more detail below.

GSPC Target 1: A widely accessible working list of known plant species, as a step towards a complete

world flora

The following outputs that were produced as part of meeting the SABONET logistic framework objectives numbers 3.3, 5.4, 5.5, and 5.9 also contribute towards meeting GSPC Target 1:

- *A checklist of Angolan grasses*, published in 2004.
- *Trees of Botswana: names and distribution*, published in 2003.
- *A preliminary checklist of Botswana vascular plants*, published in 2005.
- *A checklist of Botswana grasses*, published in 2004.
- *A checklist of Lesotho grasses*, published in 2002.
- *A preliminary checklist of Lesotho vascular plants*, published in 2005.
- *A preliminary checklist of Mozambican vascular plants*, published in 2004.
- *A checklist of Namibian plant species*, published in 1999.
- *A checklist of Namibian grasses*, published in 2003.
- *A Red Data Book of Namibian plants*, published in 2005.
- *Checklist of South African plants*, in press, expected publication in 2006.
- *Swaziland ferns and fern allies*, published in 2003.
- *A checklist of Swaziland vascular plants*, published in 2004.
- *A checklist of Zambian vascular plants*, published in 2005.
- *A checklist of Zimbabwean grasses*, published in 2003.
- *A checklist of plants of Zimbabwe*, published in 2004.
- *Conspectus of southern African Pteridophyta*, published in 2002.
- *Plants of Nyika: a conservation checklist*, published in 2005.
- *Seed plants of south tropical Africa: families and genera*, pub-

GSPC Target	SABONET Logical Framework Objectives
1	3.3, 5.4, 5.5, 5.9
2	5.11
3	6.6, 6.12
4	None applicable
5	2.7, 5.1, 5.2, 5.3, 5.7, 5.10
6	None applicable
7	None applicable
8	5.8, 6.7, 6.11
9	None applicable
10	None applicable
11	None applicable
12	None applicable
13	None applicable
14	3.6
15	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 3.1, 3.2, 3.4, 4.1, 4.2, 6.1, 6.4, 6.5, 6.8, 6.10
16	2.1, 2.2, 2.3, 2.4, 2.5, 3.5, 5.6, 6.2, 6.3, 6.9
Various targets, specifically 1, 2, 14, 15, 16	2.6

lished in 2005.

- 50% of 2,672,872 specimens housed in 16 participating southern African herbaria computerised using the PRECIS (National herbarium, Pretoria (PRE) Computerised Information System) database.
- Conducted 101 national collecting trips in ten southern African countries, travelling a total of 100,025 km, and collecting a total of 14,691 specimens to expand the herbarium collections of the 16 participating herbaria.

GSPC Target 2: A preliminary assessment of the conservation status of all known plant species at national, regional, and international levels

The following output that was produced as part of meeting the SABONET logistic framework objectives number 5.11 also contributes towards meeting GSPC Target 2:

- Compiled and published the *Southern African Plant Red Data Lists*, which lists 1,386 threatened plants in ten countries (Angolan and South African statistics are preliminary).

GSPC Target 3: Development of models with protocols for plant conservation and sustainable use based on research and practical experience

The following outputs that were produced as part of meeting the SABONET logistic framework objectives numbers 6.6 and 6.12 also contribute towards meeting GSPC Target 3:

- Organised and conducted two Threatened Plants workshops in 1998 and 1999. A total of 33 representatives participated in these workshops.
- Manual on the cultivation and propagation of southern Africa's threatened plants, *Growing rare plants*, published in 2005.

GSPC Target 5: Protection of 50% of the most important areas for plant diversity assured

The following outputs that were produced as part of meeting the SABONET logistic framework objectives numbers 2.7, 5.1, 5.2, 5.3, 5.7 and 5.10 also contribute towards meeting GSPC Target 5:

- Conducted two regional collecting expeditions, one to southern Mozambique and one to the Nyika Plateau. Fifty participants from 31 participating institutions collected a total of 5,005 specimens.
- A regional Important Plant Areas (IPA) workshop aimed at producing a set of criteria that can be used to select IPAs in southern Africa was held in May 2004. Twenty-eight participants from southern and east Africa, as well as the United Kingdom, participated in the workshop.
- This regional IPA workshop was complemented by two national workshops in Namibia and Mozambique, respectively, which had the aim of selecting IPAs in these countries.
- In South Africa, a desktop study using plant distribution data and GIS technology was carried out to identify priority regions within which IPAs need to be selected.
- Proceedings of the two workshops were published as *Important Plant Areas of southern Africa* in 2005.

GSPC Target 8: 60% of threatened plant species in accessible ex situ collections in the country of origin, and 10% included in recovery and restoration programmes

The following outputs that were produced as part of meeting the SABONET logistic framework objectives numbers 5.8 and 6.7 also contribute towards meeting GSPC Target 8:

- A total of 35 target species from 20 plant families were selected for *ex situ* conservation in SABONET's Threatened Plants Programmes in 22 participating botanical gardens in eight southern African countries.
- Manual on the cultivation and propagation of southern Africa's threatened plants, *Growing rare plants* was published in 2005.

GSPC Target 14: Importance of plant diversity and the need for its conservation incorporated into communication, educational and public-awareness programmes

The following outputs that were produced as part of meeting the SABONET logistic framework objectives number 3.6 also contribute towards meeting GSPC Target 14:

- SABONET website (www.sabonet.org.za) developed
- *Making your garden come alive! Environmental interpretation in botanical gardens*, published in 2000

GSPC Target 15: Number of trained people working with appropriate facilities in plant conservation increased according to national needs

The following outputs that were produced as part of meeting the SABONET logistic framework objectives numbers 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 3.1, 3.2, 3.4, 4.1, 4.2, 6.1, 6.4, 6.5, 6.8, and 6.10 also contribute towards meeting GSPC Target 15:

- 20 research officers, 21 technical assistants, 24 data-entry clerks, and 8 horticulturists were appointed at various times during the SABONET Project.
- 60 representatives from ten southern African countries took part in five Herbarium Management courses.
- 97 representatives from ten southern African countries took part in eight Plant Identification courses.
- A total of 16 representatives took part in one Botanical Art, one Cycad Conservation, and one Environmental Impact Assessment Course.
- A total of 52 Herbarium Internships and 23 Botanical Garden Internships were completed in the region, allowing sharing of expertise among the participating institutions in the region.
- 26 representatives from ten southern African countries were sponsored under the SABONET Fellowship Programme to obtain, amongst them, 14 B.Sc. Honours, 1 B.Tech., and 21 M.Sc. degrees.
- Participating institutions received light microscopes, binocular microscopes, herbarium cabinets, bryophyte cabinets, computers, scanners, printers, e-mail and Internet access, camping gear, photocopiers, deep freezers, microwaves, GPSs, and other equipment necessary for herbarium management, fieldwork, and research.
- One institution per country received a four-wheel-drive

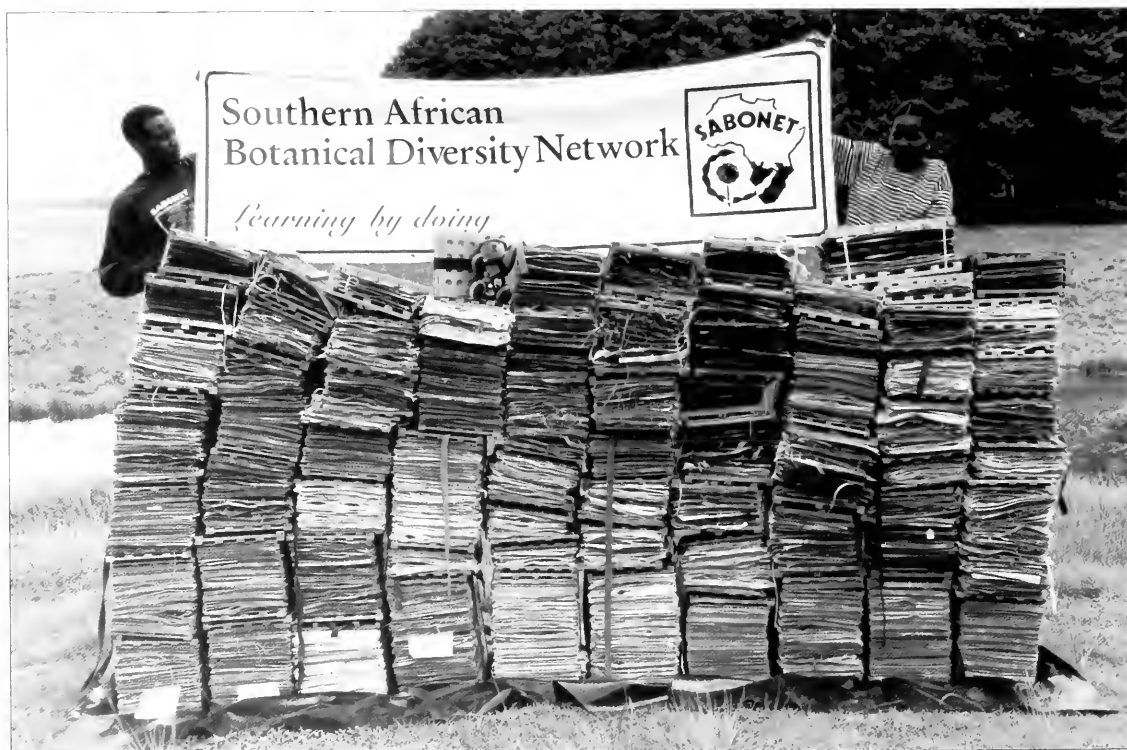
vehicle for fieldwork.

- 100 representatives from ten southern African countries participated in seven Data Management training courses.
- The SABONET IT Section continually updated and implemented new versions of the PRECIS database and computer hardware in all the participating countries.
- *Plant taxonomic expertise: an inventory for southern Africa* published in 2000.
- *Southern African national herbaria: status reports, 1996* published in 1997.
- *Index Herbariorum: southern African supplement* published in 1997 and second edition published in 1999.
- *Plant taxonomic projects in southern Africa* published in 1998.
- *Southern African herbarium needs assessment* published in 1999.
- *Addressing the needs of the users of botanical information* published in 2002.
- *Herbaria in SABONET countries: building botanical capacity and meeting end-user expectations* published in 2004.
- *Southern African botanical gardens needs assessment* published in 2000.
- *Botanical gardens action plan* published in 2001.
- 96 representatives from ten southern African gardens participated in four Botanical Gardens Management training courses.

GSPC Target 16: Networks for plant conservation activities established or strengthened at national, regional or international levels

The following outputs that were produced as part of meeting the SABONET logistic framework objectives numbers 2.1, 2.2, 2.3, 2.4, 2.5, 3.5, 5.6, 6.2, 6.3 and 6.9 also contribute towards meeting GSPC Target 16:

- Fifteen SABONET Steering Committee (SSC) meetings held.
- Minutes of all SSC meetings available at Regional Office.
- A Project Coordinator and a Financial/Administrative Officer in place in Regional Office.
- Minutes of National Working Group meetings in ten countries available from Regional Office.
- Published nine volumes (24 issues) of the SABONET newsletter.
- E-mail communication established between participating institutions.
- *Herbaria in SABONET countries: building botanical capacity and meeting end-user expectations*, published in 2004.
- *African Botanic Gardens Congress 'Partnerships and Linkages': proceedings of a congress held at Durban Botanic Gardens, South Africa, 24–29 November 2002*, published in 2004.



Wall of plant presses, Nyika Expedition 2000. (Photo: C. Willis)

About SABONET

This publication is a product of the Southern African Botanical Diversity Network (SABONET), a programme aimed at strengthening the level of botanical expertise, expanding and improving herbarium and botanic garden collections, and fostering closer collaborative links among botanists in the southern African subcontinent.

The main objective of SABONET is to develop a strong core of professional botanists, taxonomists, horticulturists, and plant diversity specialists within the ten countries of southern Africa (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe). This core group will be competent to inventory, monitor, evaluate, and conserve the botanical diversity of the region in the face of specific development challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity.

To enhance the human resource capacity and infrastructure available in the region, SABONET offers training courses, workshops, and collaborative expeditions in under-collected areas. The programme produces a newsletter, SABONET News, and a series of occasional publications, the Southern African Botanical Diversity Network Report Series, of which this publication is part.

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- The Global Environment Facility (GEF)/United Nations Development Programme (UNDP)

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* Out of print.

† Available in PDF format on the SABONET web site: <http://www.sabonet.org.za>



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